THE
WEALTH OF INDIA
A Monthly Magazine of practical information and useful discussions
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The Wealth of India.

The object of this Monthly is to publish the views of experts on the various problems bearing on material progress, specially agriculture, commerce, industry, economics, co-operation, banking, insurance, popular, scientific and technical education, to digest the notable articles appearing in the leading magazines and periodicals and generally to serve as a record of practical information, and useful discussions. It is believed such a publication is indispensable to statesmen, publicists, businessmen, students of economics and all others interested in the material and moral advancement of the country.

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CURRENT TOPICS.

By Economicus.

The Madras Economic Association.

If the auspices under which an institution is ushered into existence, have anything to do with its success, the prospects of the Madras Economic Association, the inaugural meeting in connection with which was held in this city in the middle of last month, must be pronounced to be extremely cheerful. The meeting was presided over by His Excellency Lord Pentland, and Sir Thedore Morison delivered a very instructive and thought compelling address on the value of economic study and research in India. Sir Theodore is himself on economist of no mean repute and his works bear ample testimony to his grasp of Indian conditions and problems. He spoke only the bare truth when he observed that " the economics of India are at present practically a *terra incognita*, an unknown region." If we were to recall the names of Indians who have made any special study of the subject, they may be counted on one's fingers. Messrs. Dadabbai Naoroji, D. E. Wacha, G. Subramani Iyer, the late Mr. Justice Ranade, and R. C. Dutt almost exhaust the whole list. In an article contributed to a Bombay Weekly more than three years ago, Mr. D. E Wacha frankly observed :—" The reproach has not infrequently been laid at the door of Indians of light and leading that they are sadly deficient in statistical and economic knowledge, and therefore, hardly helpful to their less enlightened countrymen, in the first instance, and, secondly, to the State, on all

important matters relating to Indian fiscal and economic problems. It must be ruefully acknowledged that the reproach is as well founded as it is just." The Benighted Presidency may now boast of having stolen a march upon the sister provinces by its having the new M. E. A., besides the South Indian Association started some time ago. Fear has been expressed which is by no means unfounded, that the glories of its career may not be commensurate with the fanfare of trumpets with which its birth has been announced to the world. The M. E. A. has been started, however, under very favourable conditions and has secured a number of earnest, influential and liberal supporters. Though its success may not come up to the expectations of Sir Theodore Morison, it will, let us hope, be able to give a good account of itself.

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Work for the Indian Economic Student.

Sir Theodore Morison feels that there is an extensive economic field in this country awaiting the efforts of earnest Indian explorers who, by their research, can fill up a wide gap in the knowledge of western economists, handicapped as the latter are by their distance from India and their lack of acquaintance with indigenous conditions. It is believed that India stands, at the present moment, on the threshold of an industrial revolution like the one which England witnessed about a hundred and fifty years ago. The knowledge of that revolution in Europe is far from perfect. Professor Marshall and others feel that Indians can throw much useful light upon that phase of English history by their cross-examining facts on the spot and making them yield a true meaning. Foreign economists are also anxious to get full information about certain socio-economic institutions which are peculiar to India such as, the Indian village community, her old banking systems and so forth. Besides helping to add to the existing stock of knowledge of economic facts and tendencies and putting the current economic doctrines to the test of indigenous conditions and experience Indian students can do a more useful service by guiding the statesmen, legislators, and politicians who are shaping the destinies of this ancient land, along right lines. A very important but difficult question is often asked, and it was suggested by Lord Pentland in his preliminary speech, *viz.*, is the economic future of India to be based, as it has been in the past, almost wholly on agriculture or, is India on the threshold of an industrial revolution, comparable in any way, to that through which many other civilized nations have passed and are passing at the present moment ? Sir Theodore Morison is prepared to welcome the expected revolution to which many look with apprehension and anxiety because he feels assured that it will enormously increase the wealth of India. He is by no means blind to the prospect of the weak being trampled upon and the poor exploited in the fierce race for wealth which will follow. The times will need brave men who will stand forth to protect the poor and the weak. In fact, India has the advantage of the example of the western nations before it, of their trials and struggles. But the lessons must be properly taken to heart and it is precisely this invaluable service that Indian economic associations and Indian economists are calculated to render to their country. Sir Theodore Morison's address ought to inspire and stimulate our educated people with higher ideals of study and research work.

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India's Absorption of Gold.

People in Europe are being frightened by certain publicists with a new "yellow peril." The bogey that is conjured up before their visions is that of hungry India devouring enormous quantities of the yellow metal as they are dug out of the mines of South Africa. The increasing gold imports of India are described in British newspapers under such flaring headlines as "India's Hunger for gold;

Rococo Rajah ; India's buried millions ; sick-men who eat gold " and so forth. In their annual review of the bullion market, Messrs. Sammel Montagu & Co., refer with consternation to the enormous quantities of gold which India has been absorbing and the various curious ways in which it is consumed by the Indian people and even consumed in the ordinary literal sense of the word. According to Messrs. Montagu, " at the present time nearly all the gold dug from the earth in South Africa is by a fresh digging operation deposited again beneath the soil in South Asia," —a statement utterly unwarranted by facts. India was long stigmatised as the 'sink of silver ;' it now becomes the " grave of gold." There is no doubt that India's absorption of gold has largely increased during the last few years having exceeded forty crores of rupees in 1911-12. Presiding at the annual meeting of the London City and Midland Bank last month, Sir Edward Holden made pointed reference to this fact. He thought that the situation could not improve unless money in India became cheap. While eight per cent. can be paid here, the London Bank rate cannot be effective in attracting gold from India in the same way as from other countries. About one third of the world's annual production of gold being absorbed by India, nearly the same quantity being consumed in arts and manufactures and twenty millions being retained by the United States for currency and other purposes, only twenty millions would be left to meet the demands of increased trade to the credit of the populations of other gold using countries. Sir Edward advocated the establishment of a central bank followed up by a greater development of sound banking institutions, thus creating credit and increasing discounting and borrowing facilities and causing high rates to disappear. There were serious dangers to international credit ahead and it had become a pressing necessity to provide protection against them. The Secretray of State is therefore urged to summon a fresh commission to reconsider the whole position before a gold coin or any other development is carried out.

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Reasons for the Absorption.

Now it may well be asked, why so much fuss about the alleged peril to international credit caused by Indian absorption of gold ? No one pays to India the gold as a tribute or as a favour. India sells her precious goods to foreign countries and is thoroughly entitled to receive gold in return. Why should she be prevented from getting what she has richly earned ? But waiving this question of right, we may observe that India's "burying of gold" has been exaggerated. It is a well-known fact that larger quantities of sovereigns are going into circulation in the Punjab and the ports of Bombay and there is no reason why the Indian population should be restricted to the use of the world discorded white metal. Then again, it is common knowledge that far from 'tying their talents in napkins' Indians are rapidly acquiring the habit of putting their money in banks, commercial concerns and industries. The so called hoards are fast disappearing and people have come to appreciate the value of their money. Under the circumstances, the outcry about India's hunger for gold appears to be meaningless. We want all the gold we can get, for our currency, commerce and industries whose needs are daily expanding. One more argument that may be advanced against the obviously self-interested criticism of Western publicists is that, India's absorption of gold, far from operating disadvantageously will act for some years to come, as a relief, in view of the high prices ruling all over the world owing to the large production of the yellow metal. The December number of the *North American Review* contains an article by Mr. Irving Fisher entitled " Is the cost of living going higher ?" Following the quantity theory of money, the writer concludes that the total circulation of the media of exchange in the world is bound to increase at a faster rate than trade and consequently the

scale of prices will steadily move higher. As regards the outlook as to the output of gold he observes that even leaving out of account the chance of great discoveries which always exists, the output is sure to remain excessive for many years even if it ceases to decrease or to increase at the present rate. Mr. Fisher believes that the oriental hoarding of gold will continue for years to afford an outlet for redunant gold and so tend to mitigate the resultant rise of prices. But he has no doubt about the fact that as with the introduction of banking, hoarding went out of vogue in England and Fance, so it must go out of vogue in India and Egypt. Hoarding is now not popular in India and even the ornament hoards are fast being turned to monetary use.

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Consolidation of Small Holdings.

Mr. Keatinge, Director of Agriculture, Bombay, speaking before the Royal Society of Arts recently, boldly proposed that in the interests of rapid agricultural improvement, the Government of India ought to take determined steps to attract capital to the industry by reconstructing and consolidating the present disappointing small holdings in India. The tiny small holdings peculiar to this country are the despair of many reforming enthusiasts. They undoubtedly do not allow the application of capital and improved methods of farming. It is a defect involved in all small industries but exaggerated in the case of Indian agriculture. What our handlooms are to the big mills in Lancashire, what are our primitive sugarcane presses and oil presses are to the gigantic crushers and pressing machines in foreign countries, our tiny plots of land cultivated by the ignorant and impecunious peasantry are to the extensive fields and plantations managed by big farmers in America and elsewhere. That large scale farming introduced into India will lead to an enormous increase in the production of agricultural wealth is undoubted. But instead of being carried away by our enthusiasm we must look to the cost and consequences of such an experiment. Mr. Keatinge would place Indian agriculture on a capitalistic basis even if it be by squeezing out small holders. We must frankly say that this simply takes our breath away. While capitalism is being condemned everywhere, States are trying to provide people with small holdings and the importance of an independent peasantry is universally acknowledged, are we going to fly in the face of experience and deliberately court all the evils of capitalism? We believe Indian agriculture can be improved in many other ways not open to the above objections. As a matter of fact until recently the question has not received the serious attention it deserves. The credit of the cultivator is now being slowly improved by means of co-operative societies, better seed and better manure are being provided and the agriculturist is being slowly educated to adopt new methods. If Government pursues its present policy more vigorously for some years, satisfactory results are sure to ensue. It would be easy to convert the existing small holdings into big plantations like the tea and coffee plantations we already have in this country; but what about the cultivators? Do they not deserve sympathetic consideration and attention? Under a capitalistic *regime* their condition is not likely to improve a bit. Economics divorced from social and national considerations becomes a useless science indeed!

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India and Tariff Reform.

The Unionists have at last reconciled, for the moment, their differences which arose on account of the blazing indiscretion of their leader and Mr. Bonar Law once more leads the party. But the peace thus patched up cannot be anything but temporary. One wing of the Unionist party considers the food taxes as an essential feature of the tariff and preference schemes, while the free trading section would have nothing to do with taxes on food. The compromise now accepted by the majority of the party, in view of the serious danger of a

split in the conservative ranks at this juncture, practically shelves the whole question of inter-imperial trade, though tariff reform must constitute the chief plank in the Unionist programme in the next general election. Whenever it may come, so far as India is concerned, Lord Crewe's utterances and the public discussion which has taken place on His Lordship's speeches and those of the Leader of the Opposition, have done much to make our position clear to the British public. Lord Crewe has effectively told the tariff reformers that their conversion to protectionism means that Englishmen will be in duty bound to extend to India the liberty to safeguard her industries even against British competition. Indian public opinion will say both to the Secretary of State and the Opposition that it wants for the Government of India, subject of course to reasonable control, perfect freedom to frame its own tariff suitably to Indian conditions and requirements. India does not lack imperial patriotism or gratitude to Great Britain. But the schemes of imperial preference put forward by tariff reformers are found only to ensure a safe and profitable market for British goods in this country and the advantages to India are infinitesimal or non-existent. No scheme of imperial trade founded upon such a basis can be acceptable to India. As it is, even without any change, England occupies the most favourable position with respect to her trade with this country. What more can India offer and what do the tariff reformers propose to give her in return? That is the crux of the whole problem on which the Indian attitude must naturally depend.

SPECIAL ARTICLES.

INDIA'S HOARD OF THE PRECIOUS METALS.

BY THE HON. ALEX. DEL MAR.

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I PROPOSE propose to show in this article; I, That the institution of money is earlier in India by many centuries than in any country of the Western World; II, That the policy of its rulers in depriving the people of arms (no matter why,) has repeatedly exposed India to foreign conquest and that the people, distrustful of the outcome, have been impelled to bury their gold and silver which they acquired by industry and commerce: hence the greatest Bank in the world is under the soil of India. III, That the drain to this Bank of the precious metals has, on several occasions, produced the most profound convulsions in the Western World; and IV, That it now threatens to produce another one far greater than any of its predecessors. To outline so comprehensive a subject compels me to be brief.

The great convulsions alluded to were: 1, The Persian conquest of the Mediterranean and the loss of Egyptian and Pelasgian (Greek) autonomy. 2, The Roman conquest of Asia Minor and Europe, the revulsion which followed, and the descent of all the Western States into the barbarous conditions of the Dark Ages; conditions which substantially lasted until the discovery of America by Columbus. Between these remote events, ages intervened; between the later ones, generations; while future intervals arising from the same cause will be limited to years. The social movement is accellerando. 3. The cataclysm of the American and French revolutions and the destruction of commercial credit, which followed those events.

This Commercial credit upon which, more than upon anything else, the progress of the world depends, is itself erected upon the legal institution called Money. Of this, a few preliminary words.

By money is meant not merely metal, but national, denominational, money, by means of which, value, both past, present and future,

can be definitely measured and expressed. Without money there can be but few exchanges; without exchanges, no commerce; without commerce, no society; without society, no civilisation; without civilisation, no progress. The circulation of money has been the principal agent in liberating man from praedial servitude. Whatever impels a nation to limit that circulation by burying its money, or the material of which its symbols are made, is responsible for the tremendous consequences of that act: not the nation itself.

1. The superior antiquity of coined money in India is established by its mention in the Vedas, the Mahabharata, and the Sutras of Panini. The Rig Veda Sanhita alludes to ten purses (dusa kosaiyih) of gold, ten pieces of gold, and the coins dinara and niska. The Mahabharata frequently alludes to moneys, including "a crore of gold coins". Panini, who wrote before the Persian invasion of India defines several moneys, among them the rupya from rupa, to strike. Sicca, or siccal, is another. The maneh of Carchemish, from which Chambers deduces the word money itself, was an Indian term. The Buddhist scriptures contain numerous allusions to money; and although some of these may be anachronical, they nevertheless support the main argument. The antiquity of money in India is confirmed by other ancient writings, by ancient epigraphic monuments, and by the existence of "punch-marked" coins of purely Indian type, which, though undated, are evidently older than the period of the Greek invasion, older than Buddhism and according to Wilson, Marsden and Thomas, older even than the vedic writings. A later series of Indian coins, stamped with Buddhistic emblems, are probably those referred to in the accounts of Arrian, and Quintus Curtius. Gold, silver and copper coins are frequently mentioned in the oldest Indian codes of law; the ramtenkiz, the archaic coins stamped with the chaitya, svastica, cross, bodhi-tree, elephant, bull, etc., are all very much more ancient than any moneys of the western world. This point is more important than it seems.

There is a blank in the history of Greece, indeed of all occidental States, between the era assigned to its earliest or Pelasgin heroes, such as Theseus, Jason, etc., and the 7th century B. C. which no historian has been able to fill. Grote gave it up in despair. This blank the archaeologists have endeavored to fill by assigning remote dates to the inscriptions and tablets found in Mesopotamia and Egypt; but as yet without success. Until it can be shown that money (not gold or silver metal, not mere commodities of any sort, but denominational, legalised and therefore restricted money,) was employed in those countries and until specimens of such money are found, the dates alleged are without any valid foundation.

The earliest references to India in western literature occur in Homer, Hesiod and Herodotus. Homer suggests the Mahabharata; Hesiod alludes to the Caliyuga; Herodotus mentions the conquests of Darius Hystaspes. Some reference to this era also appears in Justin's abridgement of Trogus Pompeius and in Vita Apoll. Tyanneusis, by Philostratus. The Indian karshapana (of silver) is mentioned by Hesychius.

About 525 B. C., Darius appointed Scylax of Caryandra to the command of a squadron of boats at Caspatyrus on the Indus, with directions to follow the stream until he reached the ocean. His account of the country resulted in its invasion in 521 by Darius himself; and although his conquests do not appear to have extended beyond the district watered by the Indus, he returned to Persia laden with spoil, after having imposed tributes equal to a third of Persia's entire revenues. It was out of the spoil of India that Darius struck those gold darics (darkonim, or "archers") metioned in the Old Testament and regarded by Mionnet as the earliest coins of the Western World.

With this Indian spoil, Darius and his successors conquered Egypt and Greece, destroyed their theocracies, dominated their oligarchies, and absorbed their industries and trade. Persian ships with Phoenician crew now opened a great commerce with India: they dis-

placed those Egyptian barks which once had commanded the Mediterranean; and even boasted of circumnavigating Africa. Persian gold, not merely all that Darius had plundered but also all that Pactolus, Sofala and Bisharee had produced, found its way to India. Then came the dearth of money in the west; the revolt of Egypt and Greece; and the decline of Persian power; yet it was not until the opening of the Laurium silver mines that the Greek democracies dared to face their "Great King." Marathon and Plataea were only the the forerunners of Alexander the Great.

2. In 522 B. C., this hero defeated the Persians at Issus, overturned the monarchy and marched to the conquest of India. His plunder of that country filled the West with gold; rehabilitated its moribund industries and restored the Indian trade; that fatal Syren which has lured so many western states to commercial destruction. In the course of two centuries India again drained the West of its precious metals; impoverished Asia Minor, Egypt and Gaul; and gave rise to those plundering Roman wars which conferred upon that ambitious power the empire of the West. For a few centuries it played a brilliant part upon the world's stage and then succumbed to the inevitable. In A. D. 22 Tiberius complained to the Senate that India was absorbing the money of Rome; Cicero had foreseen it, and Pliny afterwards measured it at *millies centena millia sesterciam* annually. Its billon coins inform us that by the time of Commodus the empire was virtually impoverished; in that of the Diocletian it was divided; and the capital was removed to Nicomedia and afterwards to Byzantium. The career of Rome was ended. Surrounding nations had been plundered and the mines ransacked, all to no purpose. India had drained away both resources. What the eagles abandoned the ghouls feasted upon; but no matter. In the 7th century Asia Minor, Africa and Spain fell to the Moslems; and for seven more centuries the Roman empire endured what is worse than extinction: rottenness and foul decay.

3. Again was the Monetary Cycle renewed. The Moslems plundered India, enriched the West and re-established western industry, re-opened the oriental trade, and eventually, with the usual fatuity, emptied all its metallic results into India's ever-open receptacles. When the Moors were banished from Spain, christian Europe had but 40 millions of people and £34,000,000 in gold and silver. Poverty, disease, crime, and incessant warfare characterised the entire middle ages. The only exceptions were the Italian cities, which shared some portion of a vast Arabian commerce.

4. With the discovery of America, the opening of a sea route to India, and the plunder of the metallic wealth of both continents, Europe once more renewed its oft exhausted energies and this time with a new and wonderful resource: National credit, public banks and paper issues. In three centuries it trebled its population and octupled its treasure. But though Europe had drawn over £ 1,000,000,000 from America, she had retained but £ 230,000,000 of it; while over double as much had been absorbed by India and buried in the earth. From the Discovery to 1776, America had yielded 1054 millions. Allowing for wear, tear, and loss, and for exports to China and Japan, more than half of the remainder must have gone to India. The rivalry of the British, French and Dutch in India at this period discloses the poverty of metal in Europe. Industry had overtaken the medium of exchange. Money was desperately scarce that the recently indented coining machines were laid aside and hand made coins reappeared. Commercial disasters multiplied: 1667, run on the London banks; 1672, Charles II plundered the Exchequer and suspended all payments to the bankers; 1696, bank of England stopped payments; 1708, again in trouble; 1714, Philip of Spain stopped payments of the Treasury, occasioning the failure of Samuel Barnard, the richest banker in Europe; 1717, bank of Venice; 1718, bank of Stockholm; 1720, Mississippi Bubble and failure of the Banque-Royale; 1745, bank of Copenhagen failed; 1745, run on Bank of England; 1762 bank of Austria

stopped payment ; 1763, Amsterdam had 18 and Hamburg a still greater number of heavy commercial failures ; 1768, bank of Russia ; 1793, bank of Amsterdam and many others stopped payment.

At this juncture America saw her opportunity and revolted ; in 1789 the French revolted ; and in 1797 the Bank of England stopped payment for 24 years and threw the entire western world into convulsions. During this interval nearly every credit institution in the west came to grief and the empire of the world was changed. Great Britain lost North America ; Spain lost Central and South America; France lost the Mississippi Valley ; while a score of new and unfamiliar States hoisted their banners upon the peaks of the Cordilleras. These convulsions lasted until the opening of the California mines. What was the matter ? India; India repeatedly conquered, plundered, disarmed, and silenced ; yet possessing in that deadly weapon of buried treasure ; a means, like those with which Providence often arms the unfortunate, of impelling the world's respect, and preserving its own unity for more auspicious days.

Between 1776 and 1850 the mines yielded 600 millions, yet in the year last named Europe only held 400 millions ; so that after all allowances are made, India must have acquired something like a fourth of the remainder. From 1850 to the present time the mines have yielded about 3150 millions. Of the accumulated stock only 1500 to 1650 millions remain in the commercial world as coin and bullion and perhaps 500 millions in jewelry and plate. At least one-fourth of the remainder must have gone to India If anybody is prepared to account for the supplies in any other way, I shall be pleased to confer with him; only before committing himself to paper, he is advised to Consult my "History of the Precious Metals" and "History of Monetary Systems", works in which the details of these computations are set forth and the sources of information given in ample measure.

It is not the Hoard in the Earth that threatens the peace of the world, because it may cost as much to recover it as to extract new gold and silver from the mines : it is the Drain, which is still going on. During the decade ending with 1909 India imported 218.2 millions and exported 70.7 millions in bullion and specie ; thus retaining 147·5 million pounds sterling during the decade, or say 23 crores a year. To this should be added her own product of the precious metals.

While it is the opinion of Sir James Wilson and other authorities that India is not burying quite so much of her treasure as formerly, she is nevertheless burying the most of it, enough to occasion a severe strain to the Western world the moment that South Africa's abnormal production gives out ; an event that, to experienced mining men, is believed to be not far off. It is not that the limits of the auriferous deposit are in sight, but that the cost of extraction is steadily approaching the value of the product. When a similar decline occurred in California and Australia, we suffered the panics of 1857, 1866, 1869, 1870, 1873, 1878, 1884, etc. ; and when it occurs in South Africa, the sunken treasure in India and Egypt will have again accomplished its dread mission.

FOREIGN TRADE AND PROSPERITY.

BY BALAKRISHNA, M.A., PROFESSOR OF ECONOMICS, GURUKULA, HARDWAR.

NOW and then a hushed up voice from Indian lips is heard that this country is growing poorer and poorer under British administration. Messrs. Digby, Dadabhai Naroji and others have written volumes to prove this assertion as a certain fact. We are not in *full* agreement with this pessimistic view, yet the arguments advanced by the Government advocates are very hollow. The British Lion has often loudly roared to drown that soft and muffled voice and jumped to gag the mouths of the so-called agitators by stern, solid

and irrefutable facts of the constant increase of wealth in India. The wonderful development of the Indian Foreign Trade is perseveringly put forth before the public and every year at the close of statistics astounding figures are paraded before the world which, it is alleged, prove beyond an *iota* of doubt that India is constantly progressing in material wealth.

Turning to the *Indian Empire*, Vol. III (307 page) we find the following statistics of the increase of India's Foreign Trade :—

	Imports.	Exports.
1882—91 (Yearly average).	Rs. 59,74,66,849	Rs. 92,59,97,417
1892—1902 (Yearly average.	71,39,95,381	109,10,44,865
1904—5	96,67,80,884	157,50,00,144

The above figures undoubtedly show an unparalleled development of trade in the known history of India and if foreign trade be a sure index of the prosperity of a nation, then none can gainsay that India is surely and steadily growing richer and richer every year. But whenever any observer casts a glance over the economic condition of India, he can not but see around him a mass of appalling misery, heart-rending poverty and millions of half-starved, starving, homeless, hopeless and helpless wanderers—so many wretched, outcast sons of God, though said to be made in His perfect image. It is then and only then that unconsciously the fact steals over him that the screw must be loose somewhere because in spite of the many arrays of and apparently sound reasoning from Indian Statistics and still more the vociferous proclamations of the growth of India's wealth, this country is surely growing poorer.

Indeed, measured by this factor of foreign trade alone, other things remaining equal, prosperity and national wealth must have increased proportionately with the increase of trade. In other words, compared with the year 1882, the national wealth of India must have *increased by 70% in 1904, while now in the year of Grace 1912, by the Lords' helping hand and the specially sympathetic attitude of the olympic gods of Simla towards their Indian Subjects, Indian wealth must have been doubled within the incredibly small span of 30 years* !

Lest we should be misunderstood we must clearly point out here that **India's national wealth has certainly somewhat increased** on account of the abnormal rise in the value of land, development of industries, opening up of foreign trade, working of the hidden mines and above all, establishment of railways and irrigation works. It is clear as noon-day that all these admirable changes have been brought about by the Indian Government and the British Capital. Now what we want to prove is this, that in spite of this wonderful development, poverty can grow *pari pasu* and this for three reasons :

(i) Under the present *capitalistic* system of production, wealth is concentrated in the hands of the few company promoters and captains of industries. *Unfortunately in India nearly half of them are foreigners who have nothing to do with augmenting the Wealth of India.* Hence wealth does not percolate to the masses, the producers of wealth, the daily workers who sow and sweat and toil day and night for national amelioration.

(ii) In these days we are living on foreign capital. Railways, irrigation works, tea and coal companies are being fed by that capital alone.

£ 365,000,000, that is, five hundred and forty-seven crores and fifty lacs of rupees have been invested by the British people in India alone. The incredibly vast sum of 219,000,000 Rs. calculated on the basis of four per cent. is annually paid as interest to our creditors ! If the profits of the thousands of English firms were to be added to this immense sum, the whole amount of money must come up to **600 millions rupees. These millions are yearly exported to England in the shape of raw material.** The life blood of India

is daily and hourly sucked but the crop goes into the pockets of others. We do not at all say that India is being deliberately bled and despoiled. But it is a fact that Indian Capital is not invested in Indian industries, that India's sons are too poor and inefficient to manage and feed the various industries, and that, therefore, India *has to pay the penalty of poverty in the shape of* 600 *million rupees to England.*

(iii) The third reason why India is growing poorer is oft repeated from various quarters. *We have to pay annually more than thirty crores of rupees* (20,000,000£) *as Home Charges to England.* They have been paid in more or less amount for more than a century. It was on this item of India's expenditure that the noble Lord Salisbury said " India must be bled." We must leave this subject as we will be treading on a dangerous path, yet it is clear that with the growth of foreign trade India can grow poorer and poorer.

Lest these reasons be not fully convincing to the reader, we will draw his attention to another set of arguments. The Indian Beaurocracy lays a special emphasis on the development of trade and we show that this is not indicative of growing prosperity. The strength of our argument is fully borne out by the following table :—

Countries.	Net Imports per head of Population.			Net Exports per head of Population.			Total Foreign Trade per head of Population.		
	£	s.	d.	£	s.	d.	£	s.	d.
1. Ireland ...	13	10	1	13	5	1	26	15	2
2. United Kingdom ...	12	11	2	9	13	3	22	4	5
3. France ...	6	6	9	5	14	0	12	0	9
4. Germany ...	6	18	0	5	8	1	12	6	1
5. United States ...	3	8	9	4	10	0	7	18	9
	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.
6. **India** ...	3	5	0	5	15	0	9	4	0

If the reader has carefully inspected this chart, facts of tremendous importance must have been revealed to his eye. Well, if the prosperity of a people could be measured by their foreign trade, it would follow that the poorest Irish people are richer than the proverbially richest Englishmen !; that they are more than twice as rich as the French and the Germans and still more horrible would be the fact that they are more than thrice as rich as the Mammon-worshipping States-the renowned land of multimillionaires !!

Following the same argument it shall have to be admitted that the Indians have now grown twice as rich as they were thirty years before and this too, during a time when the whole country was being ravaged by famine and plague of unparalleled ferocity, when in the small period of nine years only (1891-1900) 19 million producers of this country were swept away by famines, when to the horror of all concerned two British subjects were passing away from starvation or starvation induced diseases in every minute of every day and night from January 1, 1889 to September 30, 1901. Can any sane man believe that under such incredibly unfavourable circumstances the wealth of India could be doubled ?

Again, if we were to follow this argument a little further, still worse results would be revealed. We have seen that imports per head of Indian population (294,000,000 souls) in 1903 amount to Rs. 3-5 as. while exports are a little less than Rs 6. Thus the total foreign trade of India per head of population comes up to Rs. 9-4 as. only. We should carefully mark that the total foreign trade of Ireland per head of population amounts to Rs. 202-8 as. that is, twenty two times as much as that of rich (?) India. Should it then be understood that the proverbially poorest European country —a wretched Island of an Ireland is twenty two times as rich as this vast Indian Empire-the sepulchre of civiliations and empires that were mighter than the mightiest of the present day? If this be so, it tells a poor tale of the fabulous wealth of this Land of Gold and of the so-called enormous development of prosperity under the British Raj !!

CO-OPERATION IN AGRICULTURE *

BY C. N. KRISHNASAMI AIYAR, M.A., L.T., *Secretary of the Coimbatore District Co-operative Bank.*

TO the Co-operative world Mr. Wolff has been long known in so many ways and in many connections that it is difficult to say where one should begin in commending a book that comes from his pen. In the English Co-operative world, he has towered so long and well that it is impossible to point to any important co operative activity which has not benefited by his sage counsel or active participation. We have also on several occasions been favoured with his views on co-operative ideals and methods in the shape of speeches and writings and 'the People's Banks' has long become a classic on the subject. In these circumstances therefore we need hardly say how welcome this latest book is to us, which we propose ' to appraise' as well as we can to friends of co-operation out here in India.

Furthermore, the publication of 'Co-operation in Agriculture' is just now of special service to this country, for after about eight years of experimenting in all parts of India, the Government as well as the people have found out that the success that has uniformly attended the spread of 'the Credit Movement' justifies any attempt that may be made to divert co-operative activity in other channels as well. In connection with the recent amendment of the Act, (X of 1904, now II of 1912) it was urged from several quarters that the Departments of Agriculture and Co-operative Credit should join hands wherever possible and 'co-operate in the interest of the *Commonwealth*,' It is therefore ' just in the nick of time' that Mr. Wolff's book is put into our hands, and those who help the movement directly or otherwise, as well as those who are at all interested in the cause of co-operation have solid reasons to thank him for this timely service.

The reader will do well to remember at the outset that the book is not meant for those that run and read. It comes from a veteran and in every line of it it means business. It is all the fruit of stern experience and there is not a word that smells of the arm-chair or penpicture. It is addressed to people who want to read, mark and digest, and later translate the counsel offered into action. Being meant for all classes of readers, it is remarkably free from technicalities, and is at once a clear, straightforward and condensed exposition of a mighty subject. Ripe experience and sound sense are naturally the features that one notes as being uppermost in the matter of presentation on every page of the book.

The illustrious author tells us that the Advent of the Small Holdings Act in England is the reason why he was induced to expand an article he had written in 1895 into its present form. The progress made by the Agricultural Organisation Society in England, as well as in Ireland, is another reason and the book is therefore naturally dedicated to that fine friend of Agricultural Co-operation, Sir Horace C. Plunkett, K.C.V.O. 'Its object is simply to give a general outline of what has been accomplished, with the addition of such suggestions for the adoption of co-operative methods as occasion may appear to call for.'

A short introduction, which discloses the enormous progress made by Germany, Holland, Belgium and Denmark, among other European countries, also shows the relative backwardness of England in agricultural progress, because the former countries have gone in liberally for co-operative methods and the latter has not. Needless to say that the Indian reader will at once find the poles that divide his own country from the West because the first sod has yet to be turned here in this respect.

Chapter II deals with ' general principles,' some of which our leaders, both official and non-official will do well to read, mark and digest. ' Dividend hunger' has already shown itself here and there in co-operative concerns

* *Co-operation in Agriculture* by Henry. W. Wolff. P. S. King and Son, London.

and the finger of warning must needs be raised even at this stage—'Patronage co operation,' 'demagogue co-operation,' 'cupboard co-operation' and 'denominational co-operation', all which Mr. Wolff denounces in strong terms, have already begun to show themselves in objectionable forms among our rural societies, and the permission which Act II of 1912 gives for the rise of sectarian or racial societies, is already seen to be a danger and protests are being made against it from various quarters. Further, the sin of fanatics in any cause—that of holding up that cause as a *panacea*—has to be exposed and Mr. Wolff does well to show that co-operation cannot cure all evils that flesh is heir to, and show what co-operation is at best meant to do—*to enable individuals to thrive 'by removing obstacles and creating facilities for individual effort'*.

Thus, "it will break up rings, cheapen purchases, facilitate sales, create and steady markets, render practicable work of sundry kinds otherwise impossible for individuals. Within certain limits it may do away with the middleman." But, "*It cannot exploit others It is not business, but common work—It aims not at profit, but at rendering a common service.*"

This is the Law and Prophets of co-operative work and all of us that are interested in the spread of it must bear these limitations in mind. 'Wherever speculative gain is kept in view or mastership over others is aimed at, ...it is out of place.' Accordingly co-operation needs the 'maximum of publicity' in its methods and working, and it must not be made to 'respect persons.' Again, its rules and regulations need to be simple and plastic. Audit, sound and reliable, there will have to be, but "*State audit*" and implicit reliance thereon, is unsound. Indian leaders of co-operation will probably be taken by surprise to read, "*Inspection by State Auditors is worse than no inspection* at all? (*Luzzatti.*) But there it is, and auditing is best done when you have supervisors appointed by Unions and responsible to them for the proper discharge of their duties. Budding Unions will mark this and behave accordingly.

These samples will suffice to draw the reader's attention to the value of this chapter. Mr. Wolff's remarks regarding the selection of members, the territorial limits of societies, the question of funds, the proper method of beginning, the course of progress, are similarly all admirable and founded on solid experience. Mark these reflections on credit. "There is an eagerness for borrowing now in vogue which threatens danger...........Now credit is an admirable servant in its proper place, but an execrable master", and "there is a good deal of financial strength to be got out of accumulating reserves". Or again, note these words *re* the duties of members of a co operative society :—"*It* (*a society*) *has a right to look to them for loyalty in their dealings with it*...........What the members........forget is that the society's interest is *their* interest, its gain *their* gain, its loss *their* loss". Lastly those who fight shy of Unions have, on pp. 34-37, the best presentation of the subject for their instruction and may do worse than just read it.

These main principles, laid down, 'exposed' and illustrated as Mr. Wolff alone can do, are sought to be applied in the succeeding chapters to the chief questions which the rural population of the west have to face. We may at once say that, with but small additions or alterations, they are also questions which our own *raiyats* have to face and are facing, though some of them may be more *urgent* here than others. First comes supply of goods which serve to better agriculture—fertilisers, machinery and the like. In India, we have yet to begin, but the time has long come for it, and, as it is now in many men's mouths, we shall do well to profit by Mr. Wolff's lessons on the subject.

Next, naturally, is the disposal of produce. 'Grain Banks' are now being advocated here and one or two societies have been already started. We are, however, in a position to state with confidence that, even among those who have advocated it strongest, there are no clear notions of the essential principles that ought to guide them. Where villagers produce the most awful varieties of food stuff, as they do mostly in Southern India, the question of

storing them and selling them for the members' benefit, is in itself a great problem. We had better therefore receive lessons from the experience of the West, if only to keep up the good name of co-operation unsullied.

'Co-operative disposal of milk' at once makes our mouths water, for with us that is the question of questions. How to get proper value in this matter for the price paid, has been vexing us for ages—ever since towns and cities were formed here, in point of fact. *Gopalas* are a hopeless lot—nothing can change them. And good milk is the stuff of which most Indian children have to be made —and elderly folk likewise. The chapter on the proper supply of milk is therefore to us most welcome. Co-operative dairies in the West seem mainly to have had their beginning in an attempt on the part of a few to better the supply of milk, and all we have now to do therefore is, not to sit still, but go and do likewise. The Indian reader will find it most interesting reading, if, for cheese and butter, he but substitutes 'butter-milk' and 'ghee.' From one point of view, this is *the* chapter for the Indian reader just now.

Disposal of eggs and poultry, of grain, of live stock, and of other produce, are all interesting to those who deal in them, but co-operative activity directed towards 'Live stock improvement' concerns us most vitally now and had better be advocated much more strongly than heretofore and some action taken in suitable localities.

The most *educative* chapter of the book is to the Indian reader the one on 'co-operative credit', for here we come in for a bit of comparison or contrast with the West, and have actually done something for it. We are gratified therefore to find that we have done the right thing in having begun with the credit movement, for 'it was credit,... .... which gave all other co operation the start'. We may not be quite equally so to find our 'Central Banks' handled rather roughly and dubbed 'parasites for ever!' But both ways the chapter makes instructive reading and must be read with the utmost care from start to finish. There is not one word which you may neglect with profit to yourself!

Similarly co-operative *education* and 'forced' co-operation are chapters well worth perusal by the directors of the movement out here.

It will thus be seen that the book is *fruitful* throughout. The interest never flags. You can read it from cover to cover with increasing curiosity and expect to find it most stimulating reading almost everywhere. When at length you come to the closing paragraph and read, "Government money may be purchased too dearly. Co-operation, whether in agriculture or in anything else, can only succeed on republican, representative lines. You want *every* one concerned to join; you want *every* one who joins to take an active part; you want life in *every* fibre, help from *every* hand, and *every* brain.........*People do well and thoroughly only what they do of their own free will.........Co-operation is a 'Soldier's battle,'* and should be conducted by those who are arrayed to win Victory for it," the South Indian reader at all events will be strongly tempted to exclaim 'amen' with all his heart, for our Registrars have from the first acted just on this maxim, being impelled thereto by the luckiest of instincts that animated the first of them!

The book being thus a real mine of gems eminently and immediately useful to all co-operators, it is to be hoped that an attempt will soon be made to place its contents within easy reach of the mass of the Indian people, and a sensible *adaptation* of it will soon be forth coming in all the important vernaculars of the country. If any one book deserves to be thus dealt with, it is this, it is this, it is this! Every one who reads it, is certain 'to find plenty of money in it,' and something much more valuable than money. The author is one of the true friends of humanity and all that he needs is that his readers should go and do as he bids them and thrive and be happy. May he continue long serving co-operation as he has done—steadily, loyally and with solid gain at every step!

BALANCE SHEETS UNDER THE INDIAN COMPANIES ACT.

By NAYAN H. PANDIA, M.A., LL.B., Solicitor, Bombay.

A CASE of unusual interest to the commercial community of India was decided by the Chief Presidency Magistrate of Bombay on the 4th February 1913. In this case the Directors of Treacher & Co., Ld. charged a shareholder of the Company with defamation on the ground that the accused had stated at a meeting of the shareholders that the accounts were false and the directors knew them to be false.

The case occupied over twenty hearings and its progress was keenly followed by the commercial public of Bombay. The following is an abstract of the Balance Sheet and profit and loss account of Treacher and Co., Ld., made up to the 31st March 1912.

BALANCE SHEET.

Dr. *Capital and Liabilities.*

			Rs.	A.	P.
I.	Capital		10,00,000	0	0
II.	Debts and liabilities of the Company (including unclaimed dividends		99,198	8	5
VI.	Reserve Fund. General Reserve Fund. Total fund as per last account ...	6,14,326 5 4			
	Less Transferred to P. L. A/c. in accordance with Resolution passed at Last General Meeting ...	1,06,970 5 0			
		5,07,356 0 4			
	Add increase in value	748 2 0	5,08,104	2	4
	Balance brought from P. and L. A/c.		28,770	9	9
	Total Rs. ...		16,36,073	4	6

Property and assets. Cr.

		Rs.	A.	P.
III.	Property held by the Co.			
	Premises less depreciation...	4,85,626	12	0
	Plant fixtures and fittings less depreciation	68,666	3	5
	Stock in trade for certified inventory	7,07,050	12	0
IV.	Debts owing to the Co.			
	Book Debts less bad and doubtful debts written off.	1,73,197	4	2
	Insurance premia ...	2,328	3	3
	Bombay Port Trust Bonds and Government paper ...	180,512	8	0
	Deposit on arms ...	9,891	0	0
V.	Cash and investments cash in hand and deposit with Government	8,800	0	0
	Total Rs. ...	16,36,073	4	6

PROFIT AND LOSS ACCOUNT.

	Rs.	A.	P.
To balance as per last balance sheet			
,, Dividend	1,06,970	5	0
,, Salaries and wages			
,, Directors' fees.			
,, Repairs to buildings			
,, Insurance Premia.			
,, Bad and Doubtful debts written off	1,35,547	13	6
,, Balance carried to Balance Sheet	28,770	9	9
Total Rs.	1,64,318	7	3

		Rs.	A.	P.
By amount transferred from General Reserve Fund				
By amount transferred from Reserve Fund for equalisation of dividends ...		1,06,970	5	0
Balance of stock A/c 1911-12 ...		1,54,758	14	3
Interest	5,839 8 10			
Transfer fees, etc. ...	139 3 0			
Unclaimed dividends forfeited	1,085 0 0			
Amount recovered on erased accounts	2,495 13 2			
		9,559	9	0
Total Rs. ...		1,64,318	7	3

As regards the question whether the said imputation was defamatory, it was contended by the defence that by "false" the accused merely meant "inaccurate;" the Magistrate however held on the evidence that the imputation was *prima facie* defamatory. The accused thereupon pleaded good faith and justification for his remarks and rested his defence on the 1912 balance sheet of the Company. He assailed the Balance Sheet on the following four grounds, *viz.* :—

(1) The securities owned by the Company, *viz.*, certain Bombay Port Trust Bonds and Government paper had been set out on the credit side of the printed balance sheet, but opposite Item No. 4 "Debts owing to the Com-

pany" instead of opposite Item No. 5 "Cash and Investments."

(2) While the investments owned by the Company remained the same as in the year 1911, a sum of Rs. 5,839-8-10 was shown as interest in 1912, as compared with Rs.6,893-8-11 in 1911.

(3) The interest on securities was shown in the profit and loss account instead of Item No. VI "Reserve Fund" of the Balance Sheet.

(4) An amount equal to the estimated rental value of the premises owned by the Company was not debited in the profit and loss account and credited to the Reserve Fund.

As regards the first objection, the Magistrate held that the misdescription of the bonds and paper as debts was either a clerical or printer's error. If was further obvious that it was an error which the directors would have been most interested in rectifying themselves, for if it deceived, it would only deceive the share-holder into a belief that the financial position of the Company was worse than it was in fact, for a large part of its assets which consisted of Port Trust Bonds and Government paper were labelled as "debts owing to the Company."

With reference to the second objection, the explanation of the difference in the item of interest given on behalf of the directors was that in former years the amount paid by the Company as interest on overdrafts was deducted from the item "Balance of Stock Account" in the profit and loss account, but in 1912, the interest paid on overdrafts was deducted from the interest received from investments, leaving a balance of Rs. 5,839-8-10. The Magistrate was of opinion that the directors would have exercised a wise discretion had they credited the full amount of interest received, and made a corresponding debit entry for the amount paid as interest on overdrafts; but that even in the absence of such exercise, the accused would not have been justified in describing the account as "false" at the meeting without giving the directors a reasonable opportunity of explaining the discrepancy. The accused's Counsel contended in the course of his argument that the directors "deliberately, intentionally and wilfully and knowingly suppressed the fact that Rs. 1,000 more interest had been obtained and Rs.1,000 more expenditure incurred as payment of interest on overdrafts, in order to show that the working profit of the business of the Company was more by Rs. 1,000." The Magistrate however held that it was obvious that the directors could have had no motive save a desire for brevity when the merging of the two items of receipt and expenditure by way of interest was sanctioned.

The position taken up by the defence in regard to the third and fourth points resolved itself into two main assumptions, *viz.* :—

(1) That the balance of profit and loss carried to the balance sheet must be the actual trading profit of a trading company, and hence that such items as interest on investments, transfer fees, unclaimed dividends forfeited, and amount recovered on erased accounts should not appear in the profit and loss account, and if a trading company owns premises, the estimated rent must be debited in the profit and loss account, so that the actual trading profit for the year may be ascertained.

(2) If a trading company has a reserve fund and such reserve fund consists of buildings or securities, the estimated rent of such buildings and the interest on such securities must invariably be credited to the reserve fund, and such interest may not be credited to profit in the profit and loss account.

It was, however, proved that the suggested profit and loss account submitted by the defence, would exclude all such items as interest on investments, transfer fees, unclaimed dividends forfeited and amounts recovered on erased accounts; and the result of this would be hopeless confusion, and with regard to the item of interest, there was the opinion of Professor Dixie that interest on investments can fairly be called profit.

With reference to the suggested obligation on a trading company, to debit in the profit and loss account an amount equal to the estimated rental value of the premises owned by it, the only authority which the defence was able to produce in support of

their contention was a mild expression of opinion that there was no reason why such estimated rent should not be charged, and that the effect of so doing would be that the Company would give itself a lease of its own premises. In addition to this the defence relied on certain specific instances in India in which a company adopted the practice, and the vague allegation that the practice was also followed in England, but the Magistrate refused on this slender fabric to hold proved a binding obligation applicable to all cases in which a trading company owned the premises in which it carried on business. It was held that the whole assumption that the profit which should be carried from the profit and loss account into the balance sheet, is the actual trading profit of the year, was fallacious. In the schedule to the Indian Companies Act the word "profit" is explained as the "disposable balance." Had it been the intention of the legislature that this should be the actual trading profit, another item would have been added to the balance sheet, *viz.*, "other sources of income" and the words "disposable balance" would not have occurred, for it is obvious that items which form no part of a "trading profit" strictly so-called do form a part of a "disposable balance." The Magistrate observed, "so far as I can see there would of course be nothing to prevent a company from subdividing the disposable balance in the balance sheet so as to show the actual trading profit for the year and other sources of income, but so long as the sources from which income has been derived during the year are clearly shown in the profit and loss account, as was done in Messrs. Treacher and Co.'s accounts for 1912, there appears to me to be no obligation on a company to classify in the balance sheet the different items constituting the disposable balance."

The defence further endeavoured to maintain that where there is a Reserve Fund, the interest of such funds when it consists of security, and the estimated rental value when it consists of buildings, must be invariably credited in the balance sheet under the heading Reserve Fund. Although instances were produced when an estimated rental had been shown in the profit and loss account, no balance sheet was produced in which such estimated rental was shown as having been credited to the Reserve Fund. In certain cases no doubt, it might be the intention of the directors of a company to build up a Reserve Fund and allow the interest on the investments of which it was composed to accumulate year by year, but the defence failed to establish a binding obligation on the part of the directors invariably to credit the interest of securities set apart as a reserve, to the Reserve Fund. On the evidence, the Magistrate was of opinion that the accusation brought against the directors was groundless and that the imputation was not made *bona fide* and with due care and caution and he convicted the accused and sentenced him to pay a fine of Rs. 300.

While on the question of the duties of auditors, a Charterd Accountant called for the complainants, laid down their duties as follows :—In preparing the balance sheet, the directors were principally responsible. The auditor's duty was to compare the figures with the vouchers and the books, but they would not necessarily take the figures and the books as correct. The figures had to be audited. The duties of auditors were laid down with great lucidity in the Kingston Cotton case, No. 2 (1896) 2 Chapter, 284 (C.A.). There Lindly, L.J., said "Auditors are in my opinion bound to see what exceptional duties, if any, are cast upon them by the Articles of the Company whose accounts they are called upon to audit." An auditor has nothing to do with the prudence or imprudence of making loans with or without security. It is nothing to him whether the business of a company is being conducted prudently or imprudently, profitably or unprofitably. His business is to ascertain and state the true financial position of the Company at the time of audit, and his duty is confined to that. But then comes the question—How is he to ascertain that position? The answer is by examining the books of the Company. But he does not discharge his duty by doing this without inquiry and without taking any trouble to see that the books themselves show the Company's true position. He must take reasonable care to ascertain that they do so. Assuming the books to be so kept as to show the true position of a Company, the auditor has to frame a balance sheet showing that position according to the books, and to certify that the balance sheet presented is correct in that sense. But his first duty is to examine the books not merely for the purpose of ascertaining what they do show, but also for the purpose of satisfying himself that they show the true position of the Company. An auditor however is not an insurer; he must be honest, *i.e.*, he must not certify what he does not believe to be true, and he must take reasonable care and skill before he believes that what he certifies is true." What is reasonable care in any particular case must depend on the circumstances of that case.

SELECT PAPERS.

THE GREAT MAN OF BUSINESS.*

WHEN the successful business man is explaining to a young men's meeting the qualities and activities which bring success, he lays chief stress upon steady industry and thrift, with the accompanying virtues of honesty and seriousness of purpose. The atmosphere of the occasion seems suited to the repetition of this orthodox creed of the commercial faith. Surrounded by ingenuous youth just entering the business life, the powerful financier, the organiser of a lucrative combine, the skilful worker of patents, the bold concessionaire, or the land speculator, genuinely believes that what he expounds is the truth, the whole truth and nothing but the truth. It is no doubt partly the unconscious assumption of the conventional *role*, partly a clear recognition that thrift, industry, and honesty are just the qualities desiderated for the clerks, foremen, and other sub-successful employees who are so serviceable to the man of business eminence. It is not true, and probably never has been true, that the first places in the business world have been attainable merely by the practice of these qualities. Notwithstanding the conspiracy in favor of the industrious apprentice who improves every hour of leisure, picks up every fallen pin, and eventually marries his employer's daughter and is taken into partnership, the romance of trade has always made a large allowance for the elements of luck and adventure. Dick Whittington is not the true Smilesian hero. A faithful investigation into the origin of most great business fortunes lends little support to the amiable notion that they are the natural fruits of toil and abstinence.

No better example alike of the truth and the illusion can be found than the career of the late Lord Furness, a man no doubt of large and persistent industry. It may even be admitted that periods of intense energy are essential to such success. But business life contains millions of equally industrious men who reach no such goal. It is the conjunction of great opportunity with great audacity of mind and purpose that is the main source of success. Some would add, as an equally important factor, the inflexibility which enables the great man of business, like the great commander, to take full advantage of the weakness or the ignorance of those with whom he deals. In the business psychology this quality of temper is quite consistent with a lavish generosity in the expenditure of wealth. But the central truth is that in the present age the business life is the great field of activity for an adventurous spirit. Look at the really determinant acts in Lord Furness's remarkable career. It was no grinding industry or struggling thrift which laid the foundation-stone of his success, but the quick imaginative seizure of a chance occasion. He happened to be in Gothenburg just when the Franco-German war broke out, and had the wit to see that, by quickly buying up all the Swedish flour he could lay hands on for shipment to England, he could profit by the rapid rise of price. This quality of rapid judgment brought to bear on passing opportunities proved particularly valuable in the shipbuilding and sea-transport trades, which were his ladders to success. From produce-importing he soon passed into shipowning, from shipowning into shipbuilding extending his operations by leaps and bounds until he became one of the largest shipowners in the world.

But shipowning, even on this vast scale, did not monopolise his energy. The career of all the greatest business men of our time explodes another superstition, expressed in a dozen proverbs, to the effect that "the cobbler should stick to his last," and that "a Jack of all trades is master of none." In what is commonly regarded as the age of specialism, the most successful men are business universal.

* From the *Nation*.

ists. Instead of following the maxims of discretion and economy, and confining themselves to the thorough knowledge and exploitation of a single special branch of industry, your big business man continually shifts his perch, leaping from bough to bough on the industrial tree, and plucking various fruit wherever he can find it. No doubt this method of proceeding is really less paradoxical than at first appears. For such universalism as shows itself in the business flights of a Rockefeller, or a Morgan, or a Furness, is itself a mode of higher specialism. These men gradually disentangle themselves from the hampering details of the special trades which occupied their earlier energies—the oil, or iron, or railroad, or shipping—and become the owners or directors of fluid financial power which they dispose, now here, now there, for great productive or speculative operations in any trade and any quarter of the globe. The mode of such expansion is intelligently illustrated in the life of Lord Furness. For shipping is one of the readiest roads to eclectic finance. Its close dependence on the mining, smelting, engineering industries is obvious. The processes of transport make its activities continuous with those of railroads, and the organisation of the carrying trade, by an equally natural extension, reaches out tentacles into the meat and grain and other produce markets which may be brought under profitable control. Lord Furness moved rapidly along the logic of this enterprise, railroading, banking, mining in England, America, Australia, the Argentine. Incidentally, he became a great landowner, and his lighter self dipped into politics and philanthropy.

Indeed, it is not without significance that the widest notoriety which he achieved came from the most conspicuous act of failure, his experiment in co-partnership in his shipyard. There is no reason to doubt the genuineness of his enthusiasm for the harmony of capital and labor which he thought to bring about. But it is precisely in such an enterprise that the psychology of the successful business man is most prone to go astray. He is aware that it would be most profitable to the firm, and incidentally to himself, if friction and inconvenient conflicts between capital and labor could be eliminated, and harmonious goodwill be turned into industrial energy. The enormous waste of current productive power, due to the conscious and unconscious divergence of interests between capital and labour, keeps the actual output of most businesses far below their ideal output. But it is characteristic of the business magnate that he should imagine that, by some ingenious arrangement of bonuses or profit-sharing, the great gulf which separates employer and wage-earner, capitalist and worker, can be bridged. If this co-partnership idea only signifies the binding of the workers to the interests of the firm by the possession of a small proportion of the share capital and a correspondingly small voice in the control, it must ultimately fail of its purpose to break the solidarity of labor in the trade. If, on the other hand, it proceeds far enough to make the workers chief owners of the capital, and to make their voice dominate the management, a new crop of difficulties, which experience associates with the self-governing workshop, arises. The success of such a business man as Lord Furness, in developing profitable notions and forming skilful combinations, is no more warrant for the shallow psychology of his co-partnership scheme than was the even more miraculous success of Robert Owen in making money out of cotton factories a warrant for the still grander proposals of a similar sort which he sought to float upon the public. We take our great business men in some ways too seriously, in other ways too lightly. If we really applied skilled analysis to the ways in which great fortunes are made, we should realise two truths ; first, that the radical needs for a more equitable and reasonable apportionment of wealth cannot be met by minor detailed devices for harmonising bits of capital and bits of labor ; secondly, that gravely to quote sermons on industry and thrift from the adventurer-princes of modern business-life is a proceeding more humorous than edifying.

EXTENSION OF SUGAR CANE CULTIVATION.

WE take the following particulars of possible areas for the extension of the sugar industry from the proceedings of the meeting of the Board of Agriculture in India, held at Pusa in Nov. 1911 :—

UNITED PROVINCES.

Mr. Moreland pointed out that the normal area under cane in the United Provinces could be taken as 1·2 million acres, that it had gone as high as 1·5 million acres and was now in round figures 1 million acres ; that after a succession of good years the cane area increases by as much as a quarter of a million acres, and that after bad seasons it falls by as much half a million acres. He considered that the area under cane was governed chiefly by probable prices, and by the economic position of the cultivating classes for the time being He further pointed out that, although it was difficult entirely to separate *gur* and sugar production, it was in the districts producing refined sugar that the area of cultivation had fallen off. As an instance he quoted the Meerut Division, whose total exports and imports of refined sugar were practically equal but which was a large exporter of *gur*, as having shown a considerable increase in cane area since 1890, whereas in Rohilkhand, which exports some *gur* but much more refined sugar, the normal cane area had not been reached since 1898. With reference to possible extensions in area under cane, he pointed out that, in addition to the half million acres now short of the recent maximum, a further 300,000 acres out of the 400,000 acres of poppy land might be considered available for cane-growing or a total of 800,000 acres, provided cane-growing could be made somewhat more remunerative.

Calculating on a somewhat different basis namely, the proportion of cane cultivation to the total cultivated area, he estimated that an increase of 10,00,000 acres was possible in a period of five years, without seriously affecting existing agricultural economics.

BENGAL.

Mr. Heycock said that there was a considerable additional area which was capable of being put under sugarcane cultivation, but that there were not sufficient data to enable him to say how much of this area it was possible to bring under cultivation.

MADRAS.

Mr. Sampson described in detail the various tracts in which a considerable extension of cane cultivation would be possible provided that water was found as a result of the survey of the sub-artesian water sources, which has now been commenced. The districts referred to were—Vizagapatam, Trichinopoly, South Arcot, Chingleput, and the tract near the hills between Tinnevelly and Coimbatore. The West Coast had an admirable climate for cane cultivation, but was a narrow strip of country, cut up into small valleys probably unsuitable for factory cultivation.

As an example, to show that a large extension of cane cultivation is possible by the introduction of better varieties and methods, he quoted the cane of the East India distilleries and sugar factories at Nellikuppam, which has caused in the last three or four years an increase in cane area from a few hundred to 2,500 acres for the use of the factory in making white sugar direct from the cane. This was done (1) by demonstrating the feasibility of growing canes on land hitherto considered by cultivators as unsuitable for cane cultivation, *viz.*, dry land commanded by wells with a copious water-supply, (2) by the introduction of the red Mauritius cane, (3) by improved methods of cultivation and by assistance in the supply of manure, sets for planting, etc.

BOMBAY.

Mr. Main pointed out that, in Bombay, cane was essentially a canal irrigated crop, and that there was little probability of extension under well irrigation. He thought that when some of the large irrigation schemes in the Deccan are completed, the present area of 34,000 acres might be doubled in 10 years, and that the area under cane was governed by the supply

of water and capital, the latter of which difficulties, it was hoped, would be met by the establishment of the Bombay Land Bank, which purposed to lend money to Co-operative credit societies.

EASTERN BENGAL AND ASSAM.

Mr. Meggitt stated that in the Assam Valley there was apparently an almost unlimited amount of culturable jungle land, suitable only for capitalists' exploitation owing to the costs of reclamation. It had been shown by actual experience that this land could produce a good outturn of cane with pure juice, climatological and soil conditions being quite suitable, and irrigation unnecessary.

The labour supply would probably be a limiting factor.

Mr. Hart stated that there was a want of precise statistics on the point, but that in Eastern Bengal cane had largely been replaced by jute. So far as suitability of soil is concerned, there is scope for an enormous expansion of sugarcane cultivation, not only in the Assam Valley but also in many tracts of waste land in Eastern Bengal. Unless, however, the industry becomes more profitable, sugarcane cultivation wil continue to decrease.

CENTRAL PROVINCES.

Mr. Plymen said that cane cultivation under well irrigation had largely disappeared, and any extension of cultivation could only be expected on land commanded by tank irrigation. It was hoped that a considerable proportion of the 700,000 or 800,000 acres of land likely to be commanded by new irrigation works would be put under cane. The Local Administration, with a view to encouraging the establishment of a central factory, had agreed to the reservation of 3,000 acres of suitable waste land surrounded by villages, where small quantities of cane are already cultivated ; the whole protected by a large irrigation work and conveniently accessible.

PUNJAB.

Mr. Hamilton said that there was no real hope of extension owing to the periodic damage by frost, except possibly in the area commanded by the Lower Bari Doab Canal where suitable facilities might be given to capitalists if they desired to come forward.

BURMA.

Mr. McKerral stated that in Lower Burma there were 19 million acres of culturable waste land, a considerable proportion of which might grow sugarcane as the climate appeared to be suitable.

MYSORE.

Dr. Coleman said that the present area under cane, approximately 50,000 acres, might not improbably be doubled during the next ten or 15 years if the energetic irrigation policy of the Mysore Government is maintained.

Scarcity of labour would, however, create some difficulty.

After considering the facts above detailed, the Committee finds that there can be no doubt that there is a large area in each province capable of being brought under sugarcane cultivation, but whether there is a possibility of extending the area and attracting capital depends entirely on whether, having regard to the local conditions in each province, it can be shown that it is a profitable investment to grow cane.

THE MARVELS OF HEAT.*

BY WILLIAM ALLAN SUTHERLAND.

OF all the remarkable developments of science in its relation to modern industry, none is more marvellous than the utilisation of extreme heat. The romance of heat is more fascinating than any of the stories of adventure which captivate the imagination of the reader at the present day. For some years past scientific men have been striving to produce heat fiercer than any temperature of which we have experience

* Reproduced from *Chambers' Journal.*

in ordinary life. The greatest heat ever developed by the agency of man was obtained by Sir Andrew Noble, who exploded cordite in closed vessels, so that a pressure of fifty tons to the square inch was registered, and a degree of heat never previously recorded. Under such circumstances, analogous to those existing when the substance of the earth's crust was fused and compressed by volcanic action, ordinary carbon may be converted into diamonds, and Sir William Crookes found in the debris of the explosion-chamber small crystals which were certainly diamonds.

The highest temperature reached in fuel-furnaces for practical purposes is between one thousand seven hundred and one thousand eight hundred degrees centigrade, and at such a heat fireclay and porcelain are melted. Then we come to the flame fed with hydrogen and oxygen, or oxygen and coal-gas; by these means a temperature of two thousand degrees centigrade may be obtained. This is the process employed in a factory in Paris where rubies are made to the extent of one hundred carats a day. Pure alumina is used with colouring matter, ammonia is added, and there is a precipitate of the hydrates of aluminium and chromium, which is dried and burnt until it becomes a mixture of alumina and oxide of chromium. This powder is exposed to a heat of two thousand degrees centigrade, and forms into a solid mass like a pear; but when exposed to the ordinary atmosphere the pear splits into fragments of a substance so closely resembling the natural ruby that they are cut and made into jewellery.

A new industry solely dependent upon the employment of great heat is that of melting quartz. This mineral, fused by the oxy-hydrogen flame, is converted into tubes and flasks and other vessels for chemical purposes. These vessels are absolutely inert, and may be heated hundreds of degrees higher than is possible with glass; they may also be plunged at such heat into cold water without injury. The point of an arrow is also dipped in the melted quartz; when the accumulation is cold it is fired from a bow at a metal sheet, and by disintegration on impact fibres of quartz are formed which are invaluable as 'suspensions' in the instruments used for mensuration.

It has been discovered that by whirling a centrifugal wheel at high velocity in the combustion-chamber of a furnace the nitrogen is cast to one side, while the oxygen is concentrated, and in this way a brighter flame and greater heat are obtained. A similar appliance used during the combustion of coal in a furnace enabled a firm of papermakers to save 27 per cent. of their coal-bill by the elimination of the hydrogen gas formed in combustion. One of the most important modern developments of the utilisation of waste is the generation by producer-plant of excellent fuel-gas for the development of power.

But most remarkable of all the phases of the utilisation of extreme heat is the discovery of the welding material known as thermit. The inventor discovered that aluminium is very much attached to oxygen, and holds it closer than a brother. Therefore he mixed granulated aluminium with oxide of iron, for the lighter metal wants oxygen and the oxide of iron has it to give. A small quantity of magnesium filings was placed on top of the mixture, and a storm match applied, and immediately a mass of molten iron was seen boiling at a temperature of three thousand degrees centigrade—much higher than any temperature in ordinary use.

A convincing demonstration of the properties of this welding material was given in the yard of the Thames Iron Works and Shipbuilding Company, when a fractured stern frame, thirty-two feet by fourteen feet, and about nine tons in weight, was successfully repaired by these means, and the lower 'post of suction,' ten and three quarter inches by seven and three-quarter inches, was joined to the main frame. The fracture was opened out about one and a quarter inches, so that the molten material might flow between and around the two ends to be welded. A mould of sand was placed round the fracture, and the broken ends were made red-hot in a special furnace. Then a crucible containing about four hundred

weight of thermit, mixed with a quantity of iron punchings and 1 per cent. of manganese, was ignited. In exactly one minute the mixture was molten, at a temperature of four thousand to five thousand degrees Fahrenheit, and was allowed to flow into the mould to cool and set. The welding was successfully completed, and the junction resisted all subsequent tests. The marvel to the onlookers was the extraordinary rapidity with which the enormous heat was generated and the mixture fused. It was estimated that to generate such a temperature by the electric arc nearly one hundred thousand horse-power would be required. The process is now in general use. When the *Friedrich der Grosse* broke her propeller-shaft, it was satisfactorily and promptly repaired by this means.

Many new industries have arisen in the United States and in Canada by the utilisation of the vast water-power of the Falls of Niagara to generate intense heat by means of the electric arc. The manufacture of carbide of calcium for acetylene gas, of the grinding material known as carborundum from ordinary carbonaceous material, of graphite which is reputed to be better than the natural product of the mines, the extraction of refractory metals from their ores, and the elimination of phosphorus from metals and its conversion into an article of commerce, are examples of the new enterprise made possible by the harnessing of Niagara. The pioneers in this region have also made many metallic alloys which were unknown to industry some years ago. A few years back sodium was a curiosity and cost half-a-crown an ounce; produced by intense electrical heat, it can now be sold for one shilling a pound, while in the same way manurial nitrates may be produced in bulk.

There appears to be no limit to the future possibilities of the application of intense heat to industrial processes, and men of science are constantly experimenting with the object of obtaining still higher temperatures wherewith to work still greater marvels. Nevertheless, such is the cost of the process in its application to the making of the infinitesimal diamond crystals which are yielded by the furnace that the dealers in nature's diamonds need have no fears at present of the competition of their chemical rivals in this direction.

GOLD AND PRICES.

MR. CHIOZZA MONEY, in an article, contributed to one of the English papers, contends that the increased output of gold is not the cause of the rise in prices. The true cause is also stated by him to be the inability to meet the world's increased demands.

In his opinion, the easy acceptance of the deduction that, because the recent increase in gold supply and the recent rise in prices have run together, the one is caused by the other, is causing us to lose sight of a world-wide phenomenon of exceeding significance.

It is true that the gold production of the world has enormously increased in recent years. Here are the facts;

Gold Production of the World.

	£		£
1860...	28,000,000	1890...	25,000,000
1865...	25,000,000	1895..	41,000,000
1870...	27,000,000	1900...	52,000,000
1875...	20,000,000	1905...	77,000,000
1880...	22,000,000	1910...	96,000,000
1885...	23,000,000	1911...	97,000,000

If this table is carefully examined it will be seen that in the 30 years, 1860-1890, the world's gold output was very nearly stationary, ranging about £25,000,000 a year. In the five years, 1890 to 1895, the gold output had risen to £41,000,000. In another five years, by 1900, to £52,000,000. In the last 10 years there has been a further considerable increase, to nearly £100,000,000.

Price Movements.—Having noted these facts, let us next examine the following record, which shows how the wholesale prices of various important articles have varied in the last 40 years, and compare those variations with the output of gold.

The index number figures can be easily understood. The prices of 1900 are taken as a standard of comparison and are represented by the figure 100. The prices of the other years are then expressed as percentages of those of 1900. For example, in 1880 coal was 53 per cent. of the price of 1900. Again, in 1871 tea was 192 per cent. of the price of 1900. *i. e.*, it was about twice as dear as in 1900.

Prices : 1871-1911.

	1871	1880	1895	1900	1911
Coal ...	58	53	56	100	68
Pig Iron ...	72	76	57	100	76
Tin ...	96	67	48	100	145
Cotton ...	135	113	74	100	138
Wool ...	138	144	85	100	105
Jute ...	147	118	75	100	135
Wheat ...	174	163	86	100	117
Maize ...	169	130	101	100	12
Rice ...	133	124	95	100	99
Beet ...	111	122	93	100	102
Bacon ...	118	96	93	100	142
Eggs ...	118	112	98	100	100
Tea ..	192	158	113	100	105
Petroleum ...	314	156	87	100	71
Rubber ...	77	103	81	100	148
Hides ...	121	126	90	100	135
General Index Number of 45 articles including the above-named ...	136	130	91	100	100
Product of Gold in Millions of £...	27	22	41	52	97

It will be seen that by 1895 the gold output had risen to over £41,000,000 a year, and that nevertheless the price of many articles had fallen greatly. Further, if we continue the comparison down to 1900, we see that while the production of gold in that year was nearly twice what it was in 1871 or in 1880, prices in 1900 were in the majority of cases much lower than they were in 1871 and 1880. That, of course, does not show that the doubling of the output of gold did not influence price, but it does conclusively show that there were forces at work in the world which, whatever the degree of influence of gold production upon price may be, quite overwhelmed that influence, and not only wiped it out, whatever it was, but produced actually lower prices in 1900 than in 1871 and in 1880.

Further, it will be seen that it is by no means all articles which have risen in price in 1895-1911. While there have been many increments of price between 1895 and 1911, the articles named have by no means risen with anything like uniformity, and the average expressed by the line "general index number of 45 articles" is obviously the product of very different changes in the 45 articles which contribute to it. *As all these prices are gold prices, if gold were the main cause of the variations all the articles would have been affected in very much the same way.*

The true explanation of the main part of the recent rise in prices is one with true explanation of the fall in prices in spite of the increased gold output during 1871-1900. In the earlier period the virgin resources of the world in fertility, in forests, and in mines, proceeded so rapidly that although theworld demand also increased it did not increase rapidly enough to keep pace with the opening up of new countries. Therefore, prices fell. It was a process which could not proceed very far, it is obvious, without bringing the world to a point where this creaming of world's most plentiful (*i.e.*, cheapest) materials slackened, not actually, but relatively to the world's demand. In all sorts and kinds of products, in tin, in rubber, in sables, in bacon, in cheese, in wool, in hides, and so forth shortages began to manifest themselves, and sometimes in a most pronounced way. How unnecessary it is to attribute the rise in tin to over-production of gold when we know quite well that it has risen because the best tin of the Malayan mines has been used up. How idle to talk of gold as a main factor in connection with cotton prices, when we know that cotton ran short because here there was only one big supplier in the world, and that supplier was not big enough to meet the world's demand. When as in the case of petroleum, there has been no shortage, there has of course been no increment of price.

BYE-PRODUCTS OF THE MEAT INDUSTRY.*

Blood.—The first bye-product to be obtained from a carcass is the blood, and its uses vary considerably in different countries. In some continental countries it is utilised for the manufacture of feeding stuffs, which are given to pigs, horses and poultry. The general practice is to utilise the blood for the manufacture of blood albumen, which is used for a variety of purposes, such as the clarifying of sugar, the fining of liquors, and in dyeing. When the albumen has been separated out—a process which is conducted merely by coagulation—a clotted residue remains, and this is dried into an impalpable powder for the purpose of being used for fertiliser, and as such is worth about £6 per ton.

Fat.—Next in importance to the blood is the fat, which forms a large portion of the animal weight. Such fat as is not included in the carcass and sold as meat may either find its way to the tallow renderers, or it may be rendered as suet, an article for which there is at present a large demand, and which can only be made from the freshest of material. Another outlet for fat, and perhaps the most important of all, is in the manufacture of margarine, in which case the oleo which forms part of the fat is separated from the stearine, and this latter is used for a variety of purposes much of it finding its way into lard compounds which possesses the advantage of not being made from lard at all! The residual matter from the fats is carefully preserved and utilised as poultry foods, so that in this department of the business there is no waste whatever. In many of the packing houses in other countries, soap-making, as a continuation of the fat rendering processes, is carried on very extensively so that the best possible use can be made of this important bye-product. Candles also are produced in many factories from the stearine, and enable a very high price to be ultimately realised for this product.

Hoofs, Horns, and Hides.—The hoofs, horns, and hides of cattle form very important raw materials in a department by themselves. The coverings of the hoofs and the horns are very largely used for button-making, the residues being utilised for the manufacture of yellow prussiate of potash, so largely used in the making of the colour Prussian Blue; but the contents of the hoofs and horns find another outlet in the manufacture of gelatine and glue, for which purpose the trimmings of the hides are also utilised, and the finer jellies and gelatines are manufactured largely from such products and used for food purposes. The hides themselves are generally treated by hide merchants, whose business it is to select them and salt them, so preparing them for the tanner, who separates the hair from the hide, the hair being largely used for mixing with lime, and the hides being, of course, utilised for the manufacture of leather.

Bones.—Necessarily, there is a large quantity of bones produced where a number of cattle are handled, more especially if sausages and similar products are manufactured. Bones, in that case, are set free to a very considerable extent, and while they may be utilised on the small scale for grinding in the green state for poultry feeding, they are best utilised by digesting them and so extracting the fat which they contain and also the gelatine. The residue can then be ground up, and forms, as bone meal or ground bones, one of the best permanent fertilisers we use on the farm. Knife-handles, buttons, and ornaments are largely made from shank bones.

Sausage Casings.—Not the least important of the bye-products of the cattle are the sausage casings which, however, can best be handled in the aggregrate in abattoirs and where weasands, which form the lining of the throat, the middles which form the larger intestines, are all properly assorted and cleansed, so as to be used for various purposes.

All the intestines are utilised for the manufacture of different kinds of sausages, and in

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* Extracted from *The Journal of the Royal Society of Arts.*

some countries the number of different types of sausages which are made from cattle casings and beef is very great. That is an industry which seems to have developed largely on the Continent of Europe and in America, but it seems slow to move in this country.

Tripe—The stomachs of cattle form a very valuable commodity, and are converted into tripe for edible purposes, being cleansed by hand and by machinery, and with the addition of lime. Tripe cleaning, however, is best conducted on the large scale, so that mechanical appliances may be utilised, and the item of labour reduced to a minimum. On the large scale also it goes without saying that the cleaning processes will be much more reliable than they can possibly be in the smaller way.

Pharmaceutical Preparations—In some of the packing houses, in America especially, quite a large development has taken place in the preparation of pharmaceutical products, such as the pepsin and rennet from the stomachs of calves, and pancreatin, which is the secretion of the pancreas. The preparation of the thyroid and suprarenal glands is also extensively carried on, and the products find valuable uses in medicine.

DIFFUSION OF EDUCATION AND KNOWLEDGE.*

Illiteracy and Literary Productiveness in Different Countries.

BY ARTHUR MACDONALD.

THE educational status of a nation consists in the amount of literacy, number of teachers, and number of persons in its primary and secondary schools, and in its colleges and universities, relative to population. The status of knowledge may be indicated by the number of books, periodicals, and newspapers relative to population. This knowledge may take two forms, one gained through books, the other through periodicals and newspapers. One is knowledge in general; the other consists more in current information

The question may be asked, if a community or country leads another in literacy, diffusion of education and knowledge; if, relative to its population, it has more pupils in school, more teachers, more students in colleges and universities, more books in its libraries to read, and more periodicals and newspapers to peruse, is not this country or community, as a whole, very probably better educated and more intelligent than the other country or community? While there are exceptions due to special conditions, we are disposed to answer this question in the affirmative.

*From a paper on "Mentality of Nations in connection with Patho-Social Conditions," in *The Open Court*.

Table I indicates in a general way the diffusion of education and knowledge in some leading countries.

Column I gives the relative amount of illiteracy among army and navy recruits. As these are mostly adults, they probably represent best the real amount of illiteracy. Column 6 gives the number of publications (relative to population) in the list of the Smithsonian Institution in Washington. These publications are of the highest class, including journals issued by learned societies and governmental institutions.

Examining Table I it will be seen that Switzerland is much in advance of all the other countries in general diffusion of education and knowledge, and Russia is last. Italy also is very low in these respects. France shows a high degree (next to Switzerland) of diffusion in university education (81) and newspaper information (251). Germany shows the lowest degree of illiteracy and publishes the largest number of books, but not relative to its population. Denmark issues the largest number of books in proportion to its population.

The United States, compared with European nations, is next to highest (Switzerland) in

TABLE I.

Country 1908.	Education.			Knowledge and information.					
	Number of illiterates per 10,000 recruits.	Per cent. of population enrolled in schools.	Number of university students per 10,000 population.	Number of newspapers per million population.	Number of books published per 100,000 population.	Smithsonian list: Number of publications per million population (1904)	Number of books published.	Number of newspapers and periodicals issued (year.)	Smithsonian list: Number of publications.
Column ...	1	2	3	4	5	6	7	8	9
Belgium	833(1)	12·2	68	27	28	48	2763	209 (1908)	354
Denmark	20(2)	13·0	—	84	135	42	3519	220 (1908)	112
France	346(1)	14·2	81	251	28	42	8799	9877 (1908)	1723
Germany	4(1)	17·0	65	115	49	39	33317	7000 (1907)	2390
Great Britain and Ireland.	100(1)	17·0	56	98	22	45	9821	4400 (1905)	2038
Italy	3072(3)	8·1	77	60	21	24	6918	2067 (1904)	834
Netherland	210	15·0	72	132	56	36	3258	760 (1906)	207
Russia	6110(4)	4·5(5)	16	8	—	3	23852	2229 (1905)	515
Switzerland	9	18·6	178	275	116	90	4256	1005 (1907)	351
United States	380(6)	19·7	20	260	10	—	9254	21320 (1908)	—

(1) 1904. (2) 1897. (3) 1903. (4) 1895. (5) 1907: in 1907, 39 per cent. of males and 27 per cent. of all persons (9 years of age and more) were able to read. (6) In white male population 21 to 24 years of age in 1900.

number of newspapers issued, but next to lowest (Russia) in number of university students enrolled and books produced, relative to population.

Since we are disposed often to estimate countries as to their mental status or literary production without reference to their population, we will compare the countries in Table I according to the absolute number of books, periodicals, and newspapers published, as given in columns 7, 8 and 9.

As to largest number of books the rank is Germany, Russia, Great Britain, United States, France, Italy, Switzerland, etc.

As to number of newspapers and periodicals, United States is unique, publishing twice as many as France (next in rank), and from three to ten times as many as some of the other countries.

As to the Smithsonian list of publications, the rank is Germany, Great Britain, France, Italy, Russia, Belgium, Switzerland, etc.

If we take the extremely illiterate countries, as Russia, Italy, and Belgium, we find a correspondingly low percentage of the population enrolled in the public schools and a relatively low percentage of newspapers published. But when we come to the number of university students enrolled, the correspondence fails as to Italy and Belgium, which have, relative to population, a larger number of university students than Germany or Great Britain. As to the number of books published relative to population, the correspondence fails in the case of Belgium, which produces as many books as France (column 5), relative to its population. As to the Smithsonian list of publications, the correspondence fails in the case of Belgium, which is next to the highest (column 6).

If, now, the countries distinctly the least illiterate, as Germany, Switzerland, and Denmark, are compared in respect to enrolment in schools or primary education, the correspondence fails in the case of Denmark, which is behind France, Great Britain, and the Netherlands. There is no further correspon-

dence of these three highly literate countries in the other educational columns.

In brief, there appears to be but little necessary relation in these countries between degrees of education and amount of literary production. Thus, Italy, with its great illiteracy, stands very high in university education. This is interesting in connection with the fact that Italy is doing some of the best work in sociology, which is suggestive in connection with the further fact that she stands next to the highest in production of sociological works.

The United States has a large percentage of illiteracy, yet ranks highest in percentage of population enrolled in schools, but has the smallest number of university students. It has next to the largest number of newspapers, but produces next to the smallest number of books. Russia, about which data are more difficult to obtain, stands lowest in all respects relative to its population.

TABLE II—*Book Production—Per cent. for each subject.*

Country 1908.	Medicine.	Law.	Philosophy.	Religion.	History.	Sociology.	Literature.	Education.	Art.	Science.	Military sience.	Fiction.
Belgium	5·7	7·0	2·6	3·8	13·4	8·6	17·3	3·8	6·2	7·0	1·1	—
Denmark	3·7	1·1	1·2	9·6	—	—	23·2	3·3	2·2	9·7	—	—
France ...	10·5	6·3	2·1	7·3	17·3	6·4	22·0	11·4	1 2	4 5	3·9	—
Germany	5·8	10·0(1)	2·3	3·4	9·0	10·0(1)	19·5	13·8	2·9	5·7	2·3	13·7(4)
United Kingdom	3·1	2·6	—	9 5(2)	13·9	6·7	18·4	6·4	—	11·8	—	2·6
Italy	7·6	4·9	2·8	4 4	12·0	6·7	14·1	13·1	2·6	5·8(3)	1·9	6·3
Netherlands	3·3	5·3	—	6 2	—	5·3	—	9·3	—	5·3(3)	—	—
Russia	4·6	3·1	—	6·8	3·0	—	10·2	7·9	—	2·5	—	—
United States	3·6	9·9	1·9	8·8	14·7	5·9	13·3	4·5	2·5	5·1	—	16·0

(1) Law and political science. (2) Religion and philosophy. (3) Science and technology. (4) Belles lettres

Different countries naturally do not classify books in the same way, and sometimes one country will include under one head publications that other nations would place under another subject, and hence results given in Table II must be taken in a general way.

In order to render the table more trustworthy, we have included two or more subjects under one head. For instance, under "History," both "Biography" and "Geography;" under "Literature," "Poetry," "Fiction," and "Drama," and under "Religion," "Theology." "Fiction" is both put by itself and also combined with "Literature."

A few headings could not be classified nor combined with others and were omitted, so that the table is not complete, but the percentage for each subject given is, of course, not affected.

It may be interesting to note the kind of books some countries prefer, as shown in Table II. Thus, France publishes relatively more medical works (10·5) than any other nation here mentioned. Italy is second (7·6). and Germany third (5·8) in this subject. Belgium publishes relatively the most law books, Denmark the fewest. United States, Denmark and Germany lead in religious works. Denmark and France excel in literature, and Germany and Italy in educational works, and France in books on military science.

Although correspondence between mental and pathosocial conditions, or concomitant relations, does not necessarily indicate causal connection, yet it is interesting to note a few instances. In general, those countries which have the greatest illiteracy, as Italy, Belgium, and France, show the highest percentage of murder. They also have a high percentage of still-births, death-rate, and death-rate under one year of age. Two of these countries, where the illiteracy is more pronounced, as in Italy and Belgium show a low rate of suicide and divorce. On the other hand, the least illiterate countries, as Germany, Switzerland and Denmark, have a high rate of suicide,

NOTABLE UTTERANCES.

INDIAN CURRENCY REFORM.

STATEMENT BY SIR DAVID BARBOUR.

A NOTEWORTHY and deeply instructive statement relative to the history of the closing of the Indian Mints in 1893 was made sometime ago by the principal agent of the reform —Sir David Miller Barbour. He presided at a meeting of the East India Association to hear a lecture by Sir James Wilson on "Indian Currency Policy," and in opening the discussion he said:—

Sir James Wilson has referred to my share in bringing about the change ot the Indian standard from silver to gold, and on this I would like to say a few words, in justice to myself and in justice also to others. I wish to explain how it happened that I, who had for years been opposed to the closing of the Indian Mints, came to change my opinion and to become the chief agent in bringing about that change at the time at which it was made. The first suggestion to close the Indian Mints to silver did not come from me. That measure was advocated by many persons before I took it up, I remember that it was supported by two very distinguished men—the late General Sir Richard Strachey and the late General Sir George Chesney—to both of whom India owes a great debt of gratitude, (cheers), as well as by many others, but the man who is entitled to the credit, whatever it may be, of first putting forward the proposal and supporting it by elaborate arguments, so far as I recollect, is the late Colonel J. T. Smith, R. E., who was for many years Master of the Mint in India. His first essay on the subject is dated the 1st May, 1876. Sir Lesley Probyn, whom I am glad to see here to day (cheers), was a hard worker in the same cause.

THE APPRECIATION OF GOLD.

There existed at that time a very serious objection to any such change. When the fall in the price of silver first occurred, it was universally held in England that the change was due to what was called depreciation of silver, and it was by all who considered the question at all in England, and especially by the most distinguished financial authority of the day, Mr. Walter Bagehot, that a rise in silver prices would follow, and a new equilibrium be established. But when the matter came to be more carefully investigated, it was found that the change was in gold prices, which had fallen largely, and that silver prices were nearly stable. In fact, if we are to use the terms "appreciation" and "depreciation" at all, we must say that gold had appreciated, and not that silver had depreciated. This fall in gold prices was followed, or accompanied by a profound depression of trade and industry in England and other countries using the gold standard. A Royal Commission was appointed to investigate the matter, and reported that a material portion, at any rate, of that depression was due to appreciation of gold. In view of this fact and of the further fact that the production of gold was stationery, or, dwindling, it was simply out of the question to think of establishing a gold standard in India at that time, whether at the exchange of two shillings for the rupee or at another rate of exchange. An attempt was then made to go back by international agreement to the old system of double legal tender and the contest lasted for many years and with fluctuating fortune. In the end, I had to confess to myself that we were beaten though to this day I believe it will yet be acknowledged that it would have been better for the world to have settled the matter by international agreement. (Cheers).

THE DEPRECIATION OF SILVER.

When the battle was decided against us I would gladly have retired from the field, but owing to my official position I could not. And fortunately there appeared a gleam of light. In

the first instance we had been dealing with appreciation of gold, that is a fall in gold prices. Now we had arrived at depreciation of silver, for silver prices were distinctly rising. By changing to a gold standard at a rate considerably below two shillings for the rupee we would escape the effects of the appreciation of gold; at the same time by closing the Mints to silver we would escape, in some degree, the depreciation of silver. There was also every prospect of a largely increased production of gold. I came to the conclusion that the time had come for the closing of the Indian Mints to silver. In so doing, I abandoned the friends who for twenty years had fought side by side with me for the old system of double legal tender. What that meant to me I need not explain. I think they recognised the difficulties of my position for they never reproached me for deserting them. (Cheers.) I gave the first indication of what was coming in the Financial Statement for 1891-2. I then said:—

"I have no right to commit the Government of India to any opinion on the subject, but it is my belief that, in case of necessity, the gold standard could be established in India and that, if America altogether abandons silver it would probably be best that India should change her standard." For this remark I was reproved by the Secretary of State for India in an official despatch, and so far as I can recollect, that is the only occasion on which my services in connection with the introduction of the gold standard were ever officially noticed, either favourably or unfavourably. (Laughter.) But the terms of the reproof were not very severe, and in two years from that time I was authorised to introduce into the Legislative Council the Bill which laid the foundation of the Indian Gold Standard (Cheers.)

THE RATE PROPOSED.

The proposals which I had before the Government were to the effect that the Indian Mints should be closed to the coinage of silver, that no final rate of exchange should be fixed for the present, but that the Government should undertake not to allow the exchange to rise above 1s. 6d. for the rupee, and should be guided by circumstances after the Mints were closed. My advice was taken with the exception that, on the advice of a committee which sat in England, the maximum rate was fixed at 1s. 4d. instead of 1s. 6d. It is sometimes said that the gold standard was introduced into India on the advice of a Committee presided over by the late Lord Herschell. I gladly take this opportunity of bearing my testimony to the great sympathy which Lord Herschell always showed with India in her currency difficulties, (he had been Chairman of the Gold and Silver Committee when Mr. Arthur Balfour was called to Ireland from that office) and we owe him a debt of gratitude' but the proposal for a gold standard and the proposed method for carrying it out, came from me. My proposals were accepted by the Government of India. They were sent to the Secretary of State for India. The Secretary of State referred them to Lord Herschell's Committee. That Committee approved them simply altering the maximum limit of 1*s.* 6*d.* to 1*s.* 4*d.* The Secretary of State for India then gave his sanction but, to the best of my recollection, did not exhibit any marked degree of enthusiasm on the subject. (Laughter and cheers.)

THE GAINS OF REFORM.

The Indian Mints were closed, and after a period of doubt and uncertainty, the gold standard established itself automatically, and without costing a penny. Sir James Wilson has indicated to you what the effects have been on the people of India and on the trade and commerce of that country. Its effects on the financial position of India are obvious. I have not calculated what the total direct gain by the Government of India in the matter of exchange since the Mints were closed amounts to ; but it must be enormous, possibly 70 or 80 million pounds sterling. (Cheers.) Since the closing of the Mints has proved a success there have been many claimants for a share of whatever credit may be connected with that measure (Laugh-

ter.) Sometimes I am almost driven to look up the papers of that time to satisfy myself that I had anything to do with it—(renewed laughter)—but I check any feeling of vanity by reflecting that if I had not proposed the measure and carried it through when I did, somebody else would probably have done so a few years later. I can assure you there was no competition for any share of the possible future glory at the time the Act was passed in 1893, and many eminent financial authorities prophesied nothing but disaster. There is one person, however, to whom I am under a deep obligation for the assistance he gave me at the time. I refer to Sir James Mackay. (Cheers.) He threw himself into the cause with the energy and ability which he always displays in any matter where he takes a hand, and he carried great weight with the commercial community. I hardly think the measure could have been put through in 1893 without his assistance.

AN ADVENTURE FOR A LIFETIME.

The other claimants to a share of the glory are numerous, and doubtless some of them have right on their side, but you may safely reject all claims based on anything done after the Mints were closed. Whatever was done after that date was comparatively a matter of routine; was done to carry out a policy to which the Government was committed, and was necessarily in accordance with the procedure and plan which had been laid down. I am reminded of the story of the grave fears entertained by semi-civilised islanders that the god of a volcano was angry and was about to pour forth destruction upon them. They assembled in great fear and their terror was increased when the Queen of the Island went up to the mouth of the crator and defiantly cast in her shoe. But nothing untoward happened; and soon afterwards it became fashionable on festive occasions for the young ladies of the island to cast their foot-gear down the volcano. But I think you will agree with me that the real courage was shown by the person who first defied the god of the volcano (Cheers). If the Queen was half as anxious about the possible results of her exploit as I was about the result of closing the Indian Mints I am quite sure she came to the conclusion that one such adventure was enough for a lifetime. (Laughter and loud applause.)

BANKIPORE INDUSTRIAL CONFERENCE.

THE following resolutions were adopted at the last Bankipore Industrial Conference :—

I.—The Delhi Outrage.

'That the Indian Industrial Conference expresses its indignation and abhorrence at the dastardly outrage committed upon the life of His Excellency the Viceroy and begs to offer its respectful sympathies to their Excellencies Lord and Lady Hardinge, and the conference fervently prays that His Excellency will have a speedy recovery and restoration to health.'

II.—Agriculture and Commerce.

'That in view of the great importance of properly developing agriculture and Indian commerce, this conference urges upon Government and the people the urgent necessity of establishing chairs of agriculture and commerce for spreading knowledge of the general principles of these subjects among persons who do not wish to specialise in them, and for the suitable advancement of technical education the conference strongly advocates the creation of boards constituted on lines similar to the senates of universites for directing and regulating instruction therein.'

III.—Indian Chambers of Commerce.

'That this conference draws the attention of the commercial and other business classes (*a*) to the great necessity of establishing Indian chambers of commerce and associations of the industrial and financial interests, wherever circumstances exist and (*b*) to the importance to themselves and to the country of their engaging to a greater extent than hitherto, in the foreign trade of the country.'

IV.—The Atkinson-Dawson Inquiry.

'That this conference expresses its disappointment at the recommendations made by Lieutenant-Colonel Atkinson and Mr. Dawson in regard to higher technical education and expresses its disagreement with the recommendation in regard to the State technical scholarships, as these recommendations are not calculated to secure that higher type of knowledge of principles and practice required for organisation, direction and management of industries.'

V.—Provincial Departments of Industry.

'That this conference once more urges that :—

'(*a*) There should be in every province of British India, a department of industry under a Director of Industries to deal with purely industrial questions and to be in charge of technical, commercial as well as industrial education in the province ; and that there should be an advisory board of qualified persons not less than one-half of whom should be non-official Indians who should be consulted on economic questions of importance ; that the functions of this department should include (1) the introduction of new or improved methods and processes, (2) the carrying out of investigation and experiments, (3) the development of selected industries, and (4) the organisation of industrial and commercial exhibitions.

'(*b*) That there should be an industrial museum and bureau of information under the department of industry for supply of information and advice to the public on all industrial and commercial matters within the province.'

VI.—Polytechnic College.

'That while expressing its appreciation and thankfulness to the Government for the liberal action taken and contemplated in regard to technical education, this conference once more records its firm conviction that for placing the cause of industrial progress on a firm basis, it is most necessary that the Government should establish in the country at least one fully-equipped polytechnic college for imparting the highest kind of instruction in the applied sciences and industrial arts.'

VII—Commercial and Technical Education.

'That this conference urges all provincial Government and administrations, rulers of Indian States, as well as principals and superintendents of private or aided schools and colleges, to add commercial, technical and industrial classes for instruction in commercial subjects as well as in weaving, dyeing, sheet-metal working, smithy, carpentry, etc., to the existing courses of instruction, and wherever practicable to afford facilities to boys of al communities to learn useful industries as a means of their livelihood.'

VIII.—Failure of Industrial Enterprises.

'That this conference notes with regret and concern the failure of several industrial enterprises started for carrying on new industries and the effect these failures have produced in damping the ardour of the people in the development of the resources of the country. The conference calls upon the leaders of the people in the different provinces and districts to institute inquiries into the cause of these failures and to communicate to the general secretary the results of their inquires, and authorises the general secretary to depute one or more persons for conducting this investigation, if the funds at his disposal permit.'

IX—Handloom Weaving.

'That this conference specially invites the attention of the capitalists to the great and urgent necessity of improving the existing condition of the weaving industry by the introduction of labour saving hand-looms and other devices of approved patterns, in important centres of the hand-loom weaving industry, with the co operation of the weaving classes.'

X.—Railway Rates.

'That this conference once more calls the attention of the Government to the prevailing complaints about the anomalous character of the existing railway rates on goods and their prejudicial effect on interprovincial trade and urges the necessity of laying down for inter-

provincial consignments the same scales of rates as those for consignments to and from important ports.'

XI – Faculty of Commerce.

'That the conference records its sense of gratitude to the Government of Bombay for having created a faculty of commerce and urges the local Governments and the other Universities in India to follow the example of the Bombay University in establishing faculties of commerce for giving an impetus to commercial education.'

XII. = Co-operative Banks.

'That this conference once more welcomes the establishment in the Bombay Presidency of a central co-operative bank and urges upon the Government and the people of other provinces, the need of establishing similar banks to help the existing co-operative credit societies for advancing loans at reasonable rates and on easy terms to the agriculturists.'

XIII.—Co-operative Movement.

'That this conference expresses its great satisfaction at the progress which co-operative credit has made in this country since the passing of the Co-operative Credit Societies' Act of 1904, and earnestly hopes that with the wider application of the principle of co-operation under the Co-operative Societies' Act of 1912, the Government will give larger financial and adminstrative facilities which are needed to secure a surer growth of co-operation and exhorts the educated public to strenuously extend its operations to various branches of agriculture and small industries which are bound to crop up with the help of the movement of co-operation.'

XIV. – Sir T. Palit's Gift.

'That this conference places on record its gratitude to Mr. T. Palit of Calcutta for his munificent gift to the Calcutta University and expresses the hope that his example would be followed by others.'

XV.—Miscellaneous.

'That this confernce confirms the resolutions passed in previous years :—

'(1) Calling upon the Government and the people (*a*) to encourage Indian manufacturers and (*b*) to foster and encourage the use of such manufactures ;

'(2) Recommending to the people the desirability of starting funds for the promotion of technical and industrial education ;

'(3) Inviting the attention of capitalists in India to the urgent need of developing and fully utilising the mineral resources of the country and asking them to make organised efforts in that direction ;

'(4) Urging upon the attention of the Imperial Government the special claim to consideration of the textile and sugar industries; and praying for the repeal of the excise duty on cotton goods ;

'(5) Urging the desirability of the standardisation and unification of weights and measures so as to remove the serious inconveniences caused to trade by their multiplicity.'

XVI.—Office Bearers.

'That the Hon'ble Rao Bahadur R. N. Mudholkar be appointed General Secretary of the Indian Industrial Conference for the next year, Mr. N. A. Dravid, Honorary Assistant Secretary, and Mr. M. B Sant, Assistant Secretary, and this conference appeals to the public for a sum of Rs. 8,000 to carry on the work of the Industrial Conference.

That this conference deems it desirable that there should be a standing committee appointed for each year to co-operate with the general secretary in carrying on the work of the conference during the year and to advise him on all such matters as he may submit to them, and that the following gentlemen do constitute the Standing Committee for the year 1913 :— Sir R. N. Mookerji, Lala Harkishen Lal, Mr. J. Chaudhri, Sir Vithaldas D. Thackersey, Mr. D. E. Wacha, the Hon'ble Mr. Lalubhai Samaldas, Dewan Bahadur P. Rajaratnam Mudaliyar, Dr. Satis Chandra Banerji, Mr. C. Y. Chintamani, Rai Purnendu Narayan Sinha Bahadur, the Hon'ble Mr. B. Dadabhoy, the Hon'ble Babu Krishna Sahay, and the Hon'ble Rao Bahadur R. N. Mudholkar *ex-officio*.

VIEWS AND REVIEWS.

Political Economy in Every Day Life.

In an address delivered recently before the Royal Society of Arts (London), Mr. Harold Cox, Editor of the *Edinburgh Review*, said that there was an exaggerated contempt on the part of the public for the teachings of political economy, and that at present there was no attempt made to enquire what the professed teachers of political economy thought on every subject. The reasons for such a change are, according to Mr. Cox, the political conditions which made the doctrines of the mid-Victorian politicians no longer exist; and that the public believe that the doctrines of political economy are based on an analysis of one side of life only, and cannot therefore form a guide for life as a whole. He urged that the scope of politicial economy should be enlarged, and that, while attempting to make it a precise science, steps should be taken to evolve from it a practical guide in the affairs of life. After discussing in detail several platitudes and fallacies underlying its principles, Mr. Cox concluded :—The assumption that all men are engaged in seeking exclusively their material advantage must be laid aside. No doubt most of us must normally think first of ourselves. That is the beginning of life and without this primary selfishness,the race would come to an end. But that is not the whole of life, and as the power of man over nature increases, selfishness becomes progressively less essential. *We can afford to be less selfish than our ancestors, because the conditions of life are easier*. But just as it is impossible to allow men to give way to their selfish instincts without the restraint of law, so is it dangerous to leave them to gratify their unselfish emotions without the guidance of general principles based upon a scientific investigation of economic and social problems. My appeal, then, to political economists is to come down from the clouds, to be practical as well as theoretical, and to have the courage to indicate moral duties, as well as economic advantages. The political economist, as I conceive his *role*, should supplement both the politician and the preacher. On the one hand, it is his business to show how political schemes are likely to affect the welfare of the nation ; on the other hand, he has to explain to individuals, how they ought to act in the complex circumstances of our social life. It is a difficult *role* to undertake, open to much misinterpretation and to many pitfalls, but it is a *role* worthy of the best brains of the nation..

The Accounts Department in India.

A writer in the *Accountant's Magazine* defines the work of the Accountant-General with the Government of India thus : The duties of this official include the making of rules and regulations, the signing of an incredible number of papers, and the general supervising of the work of an enormous staff. Administering stinging reproofs, and keeping a watchful eye on all recommendations for promotion, are also a part of his daily labours. Should the Accountant-General be unusually zealous, he may find it necessary to dispute "pay-bills" submitted to him for his perusal and signature. The "district officers," by which term is meant the hundreds of "Public Works" engineers, "State Railway" engineers and *employees*, " Civil Surgeons " (a species of Government doctor), "Assistant District Superintendents of Police", "Opium-wallah,". "Inspector-Generals" of all descriptions, "Joint Magistrates," "Cantonment Magistrates," and so forth, render every month to the Accountant-General a statement showing the amount of travelling allowance to which they are entitled. The A. G. (as the Accountant-General is known) sometimes makes it his business to cut down the sum claimed, thus bringing much wrath upon himself. However, since angry words have no effect upon him, strongly worded remonstrances are thrown away when directed against his department, and he continues to practise economy until the time arrives when his well-earned pension is due.

The Accountant-General is also in charge of the Military Accounts Department which has

offices in various parts of India ; The Military Accounts Department, as its name implies, deals with regimental accounts of every description, including those which have to do with arsenals, gunpowder, small arms and general ammunition factories. The monthly pay of the Commander-in-chief and that of the private soldier go through this channel, and every charge levied by contractors and other Army suppliers is passed in the same manner. In conclusion, it may be said that there is no department in India which shows better results, a state of things which has been in existence for very many years.

Industries of Behar and Orissa.

A writer in a recent issue of the *Hindustan Review* treats of the various industries of Behar and Orissa and their development. In the old days, a characteristic feature of the Behar industries was their localisation. But now several of the art industries are losing ground. The artistic taste is slowly dying out. The woollen carpet industry is steadily falling off from the high altitude it once reached. And at the present day, the mill industries of Behar are being carried on spasmodically, and in a very small way. As regards mineral resources, there are reports of vast possibilities, and enterprising people may make fortunes, if they come forward in time. Mica is the chief mineral wealth of Behar. The rough Monghyr stones furnish household utensils to the common people. Timber is found in abundance, and there are forests of trees which may all be found economically useful. Carving work is done here beautifully. The tanning industry has great possibilities, as at present raw hide is exported from the Province in large quantities. From the sands of Patna rich in silica, good glass can be made. And the aloe fibre industry may very easily be started.

Turning to manufactering industries, we find that the Utkal tannery at Cuttack is being carried on on a very large scale. The Tata Iron Works at Kalmati is one of the biggest of its kind in the world, millions of tons of coal are extracted from fields in Hazaribagh and Jheria. Behar possess immense possibilities for the carrying on of various industries ; raw produce is to be had in abundance, while there is no lack of capital. The only lack is the commercial instinct and the spirit of enterprise in the Beharee ! Behar must look to this.

An Imperial Decimal Currency.

Mr. W. H. Hardwicke pleads in the *Empire Review* for the establishment of a uniform decimal currency throughout the British Empire. The Committee of the House of Commons specially appointed to consider the question of the decimalisation of the coinage, recommended that the pound sterling be taken as the unit. But the pound is a money value far too high for the purpose, and apparently India was left out of consideration. Mr. Hardwcke thinks that an interchangeable currency between Great Britain and her Colonies and Dependencies would be a very useful reform. Writing of India, he says: The "pice" being equivalent to the farthing would greatly facilitate the necessary changes in that Colony and it would therefore suffer the same depreciation of 4 per cent. The "anna" (= 1*d.*), which is a scolloped nickel coin, would also assist, and though, like the penny, decimally antagonistic, would be retained, and be known by the alternative name of "4 pice." The troublesome "rupee" (= 16 annas = 64 pice), which has had such a fluctuating career —from 2*s.* to 1*s*, 2½*d*, but is now rated at 1*s.* 4*d.*—would be withdrawn in favour of the British Imperial florin, as it would be impossible at its present value to work it in with the decimal series ; and to retain the name, and apply it to a coin of 2s. would cause endless confusion. The cost of the change in the Indian currency might be borne by the "Gold Standard Reserve" now invested in British securities.

As regards the use of nickel and aluminium for minting small coins, the writer prefers the former, in that aluminium is affected injurious ly by contact with solutions of soda." For circulation in India, Ceylon, Mauritius and

Seychelles, Malta, Nigeria, East Africa and Uganda, British North Borneo, and Hong Kong and Labuan, three new coins of bronze will be issued, representing the following values, *viz.* : one mil—1-10 centese or pice ; 2 mils—$\frac{1}{5}$ centese or pice ; and 5 mils—$\frac{1}{2}$ centese or pice. The last-mentioned coin alone of these will circulate in Guernsey, and as a "half centese." They will be of the following sizes respectively, *viz.*: 1·3cm., 1·5cm., and 2·0cm ; and be legal tender to 1 dice.

Sixty Years of Farm Progress in the U.S.A.

The record of 16 years of farm progress recently issued by the United States department of agriculture begins with a yearly farm production worth $4,000,000,000 and ends with $9,532,000.000 During the last sixteen years the farmer has steadily increased his wealth production year by year with the exception of 1911, when the value declined from that of the preceding year. If the wealth produced on farms in 1899 be regarded as 100, the wealth produced sixteen years ago, or in 1897, is represented by 84, and the wealth produced in 1912 by 202·1. During the sixteen years the farmers' wealth production increased 141 per cent. "The array of figures that express the farmers' contribution to national wealth production testifies to the farmers basic importance to the nation. During the last sixteen years the wealth production on farms, according to the census items, reached the grand total of more than $105,000,000,000. This stream of wealth has poured out of the farmers' horn of plenty and in sixteen years has equaled about three-quarters of the present national wealth.

Secretary Wilson declares that this increase of agricultural wealth has just begun : "The most effective move toward reducing the cost of living is the production of greater crops. Beginnings have been made in a production increasing faster than the natural increase of population." The Secretary calls attention proudly to this year's enormous crops, of which only two, wheat and tobacco, have been exceeded twice in production, and only two, cotton and rice, have been exceeded once in production. "All of the other crops stand at high water mark—all of the cereals but wheat and rice, the great hay crop, potatoes, flaxseed, and beet sugar." He also recounts the advances made in a Department which has in sixteen years "progressed from the kindergarten through the primary, middle, and upper grades of development until now it has a thousand tongues speaking with authority". And again : "Bureaus have been created and expanded. Lines of research, investigation, and demonstration have been multiplied. Congress has piled duty on duty from year to year. The corps of experts needed in the increasing amount and variety of service has grown greatly. The Department has become a great agricultural university for postgraduate work. Discoveries for the benefit of farm practices and improvements of old ones have been countless. The Department has both promoted and begun a revolution in the arts and sciences of agriculture. From a department with 2,444 employees in 1897, and an appropriation of $3,272,902, it has increased to 13,858 employees at the beginning of the present fiscal year, with an appropriation this year of almost $25,000,000. Whereas there are now 52,000 requests every week for Department publications, there were but 500 in 1897 and in this period 225,000,000 copies have been distributed."

Technical Instruction in India.

For the imparting of sound technical instruction, India possesses but few first class institutions, and the influence of these must therefore be infinitesimal indeed viewed in the light of the whole country's requirements. The princely munificence of men like the late Jamsetjee Nusserwanjee Tata, and recently of Sir Tarkanath Palit is praiseworthy indeed. But the point is we want more such men, and joint and concerted action on the part of Indians of moderate means in place of the isolated efforts being made here and there throughout the country.

A writer in the *Calcutta Exchange Gazette*

puts the position pithily: The ambitious scheme of establishing a polytechnic institution is worth trying. But until this project is undertaken, and even after it becomes an accomplished fact, there is bound to remain in the country unlimited scope for the establishment of separate institutions for post graduate courses and special instruction, to suit local circumstances, and for the diffusion of technical training. Each school of this kind should be complete in itself as regards equipment and teaching staff. Special courses are urgently needed owing to the vastness of the country and the different requirements of its polygenous populations.

It is gratifying to find that in centres like Bombay, Calcutta and Madras and in several places in the mofussil, the importance of specialisation is already recognised, and there is now the need only for a further expansion of this idea. While pointing to the beneficial results of technical training in Japan as well as in Europe and America, it must be admitted that, while in every other country, technical education has followed the organisation of industries, or grown up with them, and may be said to be the necessary complement to industrial efficiency, it is obvious that, in a country where few industries are established the wholesale education of Indians could only result in an excess of young men trained up for posts which do not exist, and for whom no suitable occupation can be found. Nevertheless, a large portion of articulate Indian opinion seems to understand that if only a sufficient number of technical institutes are established, and a sufficient number of men are trained to take up appointments, the establishment of manufacturing concerns must follow, and the industrial regeneration of India will be assured.

British Tariff Reforms.

A writer in the *Empire Review* sums up the advantages of Tariff reform for England thus:—

"(1) It will enable us to negotiate successfully with these great commercial rivals who at present possess weapons in the shape of a tariff, which they can use against us who have no weapons of any kind; (2) it will safeguard our interests and prevent undue and illegitimate competition by rivals who are protecting themselves by very high tariff walls; (3) It will make possible an arrangement with our sister States, which will minister not merely to the unity and greatness of the Empire, but will make the British Empire a great commercial unit which can hold its own against these commercial countries now our rivals." Mr. Balfour had in mind only these when he defined the fundamental planks of tariff reform in these terms: Broadening the basis of taxation; the safe guarding of great industries, the question of foreign markets; and the problem of colonial markets.

Dr. Weisengreen writes: "Even should England go over to high tariff Protection, it is very uncertain if it could be made to suffer by any policy of revenge that might be attempted. Imperial Britain would be as compact as a world within itself, self-supporting, self-protecting and in a position to dictate to the world without. Until the introduction of tariffs, Germany had no national industry. England held the monopoly, which we have succeeded in smashing. The only possibility of saving what remains to her is Imperial Protection. Since 1860 commerce has been developed on highly scientific principles, and conditions are entirely changed, so that England's industrial position in the world is no longer possible. Free Trade does not and can never pay. Tariff Reform must come."

Petroleum in South India.

A writer in a recent issue of the *Hindustan Review*, points out that the figures for petroleum consumed in India are going up by leaps and bounds year after year and that a comparison instituted between the quantity consumed ten years back and the quantity to-day reveals results fairly astounding. The oil used falls under two broad divisions: (1) the foreign imported petroleum on which recently the

tariff has been increased by the Indian Government, and (2) the yield of the growing oil fields of Burma nearer home ; and it is to be noticed that both heads indicate a very considerable increase. The output of crude oil from the Indian oil fields alone has risen during the last decade from 37¾ million gallons to 233½ million gallons, *i. e.*, the ratio of increase has been more than six-fold ; and judging from these figures and the number of oil companies that are springing up like mushrooms in Burma, the prospect of the foreign oil seems decidedly poor. But simultaneous therewith, there has been a silent and growing development of the foreign oil trade also, till to-day it has obtained too firm a footing to be easily shaken off.

What are the causes which have operated to bring about this result ?

The causes attributed are "the cutting of prices and the general prosperity of the country", but it is very doubtful if these can account satisfactortly for the phenomenal extension. It is true that prices have fallen considerably and, of course, this must have had its share in popularising kerosine ; but it is a much debated and an open question whether the country is getting prosperous, and still more questionable whether it has contributed towards the result. The root cause may be found, not here, but in the gradual substitution of kerosine for castor oil all over the country—a process which has been proceeding with greater rapidity for some time past than in former years. From time immemorial, the only oils used for lighting purposes had been castor oil chiefly and cocoanut oil secondarily until kerosine oil and kerosine lamps followed in the wake of western civilisation. But kerosine is beginning to permeate every class of society. The most distant rural tracts have been reached and brought under its sway and where a year back a castor oil light dimly burned, we now see the chimneyless tin lamp with its ascending column of dense smoke and dingy smell. Taking any mofussal centre, we find that whereas the town sales have not visibly advanced, the quantity carted to the outlying villages is perpetually going up—a plain symptom of the waxing popularity of kerosine among the vast peasantry. Cart loads of oil are taken to the market fairs and thence distributed to remoter parts until the smallest hamlets are come to. It would indeed be a rare sight nowadays to see a village bazaar without a kerosine tin and measuring bottles—a thing which was the exception and not the rule a dozen years back.

The chief element in bringing about the revolution has been the cheapness of kerosine more than its intrinsic merits as compared with castor oil. The economy effected by the use of the former obviates any of the disadvantages attaching to it. And the effects wrought by the revolution are well summarised by the writer himself :—"The peasants and the poor have readily taken to kerosine from motives of economy irrespective of its deleterious effects when employed in the fashion in which it is done by them. All our cherished notions of comfort or convenience are swept to the winds and we are thankful for anything that can serve our absolute necessities when the daily problem is how to keep body and soul together. The murky smoke, the unpleasant odour, the greater danger, all these considerations do not weigh when the point of cheapness decides the question conclusively in favour of petroleum in the case of the toiling millions to whom an anna saved means probably rice for a meal. It is however impossible to deny that, used as it is by them—in ill-made chimneyless lamps—kerosine labours under demerits more patent and has effects more far-reaching than the sooty roofs and repulsive smell. Its effect on the health of the individuals, cooped up as they already are in denlike cottages without any shadow of ventilation, is highly pernicious, and the danger to the thatched roofs spread over frequently with straw is hardly less."

Practical Value of Soil Analysis.

A recent issue of *the Journal of the Board of Agriculture* states that in most cases the idea

appears to be entertained that having a soil analysed is a ready means of obtaining an indication of its fertility. A discussion as to how far this view is correct may therefore not be out of place.

The fertility of the soil may be defined as its power of growing crops and while this depends to a great extent on the soil's ability to supply the crop with what is often termed plant food, particularly nitrogen, phosphoric acid and potash in a suitable form, this is by no means the only essential condition. Even if the analyst could give complete information about plant food and were able to measure accurately the mechanical condition of the soil, the information obtained in the laboratory could only give a very incomplete idea as to the fertility of any particular field and the farmer would have to supplement it by his own local knowledge, experience and judgment. Although the analyst is unable at present to give more than very rough and incomplete information even about those factors influencing fertility, some of the difficulties with which he has to contend may be mentioned here. He can determine as accurately as need be the total amounts of nitrogen, phosphoric acid and potash in the soil and it has been found that, even where external factors, *e.g.*, climate, depth of soil, etc., do not enter into the case, there is often little or no connection between these amounts and the soil's manurial requirements. Most of the plant food, however, is an unavailable or locked-up condition and is only gradually set free or made available. In the case of phosphates and potash, a method has been devised of roughly measuring the amount which may be regarded as of immediate or prospective value to the plant by finding, not the amount of phosphates or potash present, but the amount which is dissolved out in a given time by a week solution of citric acid. This method gives results which in many cases indicate fairly well whether a particular soil will respond to applications of either of the two kinds of manure. At the same time there are many cases where the results obtained are at variance with those obtained by actual experiment in the field.

Two conditions essential for the satisfactory growth of crops are a sufficient supply of water and the proper aeration of the soil. By carrying out a "mechanical analysis," the proportions of particles of different degrees of courseness can be measured, and as the results of such analyses accumulate, it will probably become possible to estimate from such an analysis such factors as water retaining power, ease of drainage, ability to withstand prolonged drought, etc.; and even to say with some degree of certainty what systems of cultivation are most likely to result in a good tilth at any particular time of the year; but in most cases an experienced farmer would be able to gain more useful and accurate information by walking over the land and examining it carefully at different times of the year.

Chemical and mechanical analyses of soils are of little practical value except in a few special cases. An intelligent and local farmer could give a much better idea of the fertility of any particular farm than an analyst.

The Case Against Fiscal Change.

Mr. T. F. Rowbotham read a paper on India and Protection to a meeting of the Manchester University Economics Society on the 15th January.

Mr. Rowbotham suggested that the cause of the prevailing unrest in India was the fact that, although higher occupations in India were filled to overflowing by the stream of university trained men which had been turned out during the last few years, there existed among educated Indians a serious unemployment problem. Neither Indian agriculture nor industry were on a large enough scale to offer openings to these people, and there had arisen, therefore, the lecturer said, after the failure of the Swadeshi movement, a claim for State intervention on behalf of Indian industries. He maintained that India would not be justified, having regard to the benefits it had had from British Government in the last fifty years in following its own interests, without

consulting those of Great Britain, and then went on to show what Great Britain would lose from the setting up of Protection, with a preference for Britain, in India. Great Britain, he said, supplied 62 per cent. of the total imports into India (£80,240,000) and had 38·7 per cent. of the total Indian trade. By contraction of its trade Great Britain would lose enormously in the cotton, shipping, and iron trades. Of India's textile imports England supplied 99 per cent. of its greys, 98·1 per cent. of its whites, 94·2 of its prints, 91 per cent. of its yarn, 98 per cent of its sewing thread, and 83·8 per cent. of its handkerchiefs and shawls. To counterbalance this loss Great Britain could only hope to divert for itself, by the preference half of the 30 per cent of imports which came from foreign countries to India.

Nor would India, the lecturer held, benefit substantially from Protection. It would be difficult to find in India any natural resources which Protection would help to develop. The people had work enough already, and there would be little sense in diverting them from the fields to live in filth and squalor of the bazaars. India had no organised capital, no leaders of industry, and no trained native labour and if Protection were established, exports kept out, and factory industry begun, all the posts of importance would fall into the hands of foreigners and there would be no satisfaction of the demand of employment of the educated natives.

The Cost of Living in New Zealand.

Like most other civilized countries, New Zealand has recently suffered a good deal from an increase in the cost of living. The Royal Commission was accordingly appointed to investigate the subject and it has compiled a valuable collection of facts and made some useful suggestions.

The first of the questions submitted to the Commissioners by their order of reference was, "Has the cost of living increased in New Zealand during the last 20 years ?" Only one answer was possible to this question, but the estimate given by the Commissioners of the amount of the increase is lower than was generally expected. After premising that the work has presented immense difficulties and that their conclusions can only be regarded as "tentative and roughly approximative," the Commissioners declare that "the general result is an increased 'cost of living' of at least 16 per cent. between the middle and later nineties and the present day." Rent and clothing are estimated to have increased 20 per cent. No general estimate is attempted in the case of food, but the increase in the cost of various staple articles ranges from 10 per cent. for wheat to 41 per cent for butter and 61 per cent for cheese. The average increase in the price of the poorer classes of boots is said to be not less than 66 per cent. While lighting has decreased in cost about 27 per cent. fuel has increased about 5 per cent. Under the heading "Attendance, etc." the Commissioners find that "the wages of domestic servants have at least doubled during the last 20 years owing to the comparative scarcity of the supply."

As to the relation of the cost of living to the standard of living in New Zealand, the general conclusion of the Commissioners is that "the standard of living has risen very considerably, but it has risen because of the growing surplus of income left after paying the 'cost of living.'" Regarding the relative shares of the wage-earning and the wealthier classes in this rise, the Commissioners say that "the data for such an estimate do not exist in New Zealand." Their finding with regard to the changes in nominal wages and real wages is as follows :—

Wages and prices have pursued almost parallel courses, and over the last 20 years the rise in wages has been sufficient not only to preserve the old standard of living at the increased prices but to add considerably to the comforts and common luxuries consumed ..... But for the last two years the accelerated rise in the prices of food and some other necessaries has probably made it more difficult to maintain this higher standard, for incomes do not appear to have risen in proportion, the

wages lagging behind prices even more than has been usual.

The principal causes assigned by the Commissioners for the increased cost of living are :—(1)The increase in the supply of money and in the velocity of its circulation ; (2) the increased cost of production of food-products and the increased demand for foodstuffs; (3) depopulation abroad and the slackened rate of production of foodstuffs in countries such as the United States ; (4) local combinations, monopolies, and trusts. The Commissioners are satisfied that "the cost of living in New Zealand has risen much more than the rise in the supplies of gold and of money generally would explain." They also point out that "while the goods we export have risen about 40 per cent. the goods we import have risen only 3 or 4 per cent. and therefore have come into the Dominion in a rapidly increasing volume and benefited all classes of the community."

Among minor causes are mentioned public and private waste, increased taxation, the protective tariff, and the higher standard of life. The most definite and immediately practicable, of the remedies suggested is the abolition of the duty on all food-stuffs and on the necessaries of life used by the primary producers. The extension of the scope of the Commercial Trusts Act and the tightening of its provisions, the breaking down of land monopoly by increased taxation, and a "Compulsory Utilization of Lands Act" and various improvements in agricultural, technical, and general education are also suggested. "The need for a systematic and energetic policy of immigration" is one of the best points made.

The Question of Soil Sickness.

We read in the *West India Committee Circular.*—

One of the most interesting problems of modern scientific agriculture is that of "soil sickness." Soils, although well provided with the food constituents necessary for plant use, well cultivated and in good condition, are very frequently apt, after the prolonged cultivation of any particular variety of plant, to cease yieding good crops of it, while the plant itself is apt to become weakly and liable to disease. In this case the only recognised remedy is to change the cultivation, when, as a general rule, no further trouble is experienced, the change to another member of the same family often being quite sufficient to produce the desired result. What soil sickness results from is a question which has given rise in recen. years to much discussion. A very common theory is that it is due to the presence of a toxin, and that this toxin is the product of the plant itself. According to this view, the toxin thus produced only affects prejudicially the particular plant which produced it—a theory which would presuppose the formation of toxins equal in number to the plants in existence. But it is very difficult to believe that this is actually the case. In support of this views however, it is put forward, as the result ol experiment, that wheat seedlings exude from their roots something that causes the watos solution to be toxic to a subsequent batch ic seedlings. Another hypothesis is that the toxic bodies are derived from the organic constituents of the soil itself, and products have been isolated which produce harmful effects on vegetable growth. Dr. E. J. Russel has, however, lately advanced arguments against the toxin theory, and quotes the celebrated Rothamsted experiments, in which wheat has been grown continuously in one field without any manure since 1839, and still continues to yield crops up to the average of the first lots grown. These results are compeletely against the toxin theory. On the other hand, a field cultivated continuously with mangolds was soon in difficulties, a position of affairs which Dr. Russel attributes to the system of cultivation, whereby a hard layer of soil it formed some five inches below the surfaces thus pointing to a particular system of cultivation producing the effect on continuous crops attributed to toxins.

PROBLEMS OF THE DAY.

INDIAN FINANCIAL MANAGEMENT.

The following special article summarizing the Anglo-Indian Opinion appeared in the *Times* of January 20 :—

The series of articles contributed to our columns early in November by an Anglo-Indian Correspondent condemnatory of India Office management of revenues of the country, together with concurrent disclosures as to the secret purchases of £5,000,000 worth of silver for coinage from Messrs. Samuel Montagu and Co., have naturally attracted much attention in India. As the non-official European community there is mainly composed of business men, the Anglo-Indian newspapers devote considerable space to commercial and financial affairs, and their comments afford a valuable index to mercantile opinion, both European and Indian. It should be noted, however, that some of those newspapers, even of weight and influence, have been slow to commit themselves to definite opinions upon the many complex questions underlying the problem of India's managed currency.

THE PRINCIPAL CRITICS.

The name most prominently associated with the attack upon the India Office is that of Mr. de P. Webb, C. I. E., Chairman of the Karachi Chamber of Commerce, and its Representative upon the Bombay Legislative Council, who has eagerly pressed the advantage given by the quickening of public interest in the matter to write many articles and letters to the Anglo-Indian newspapers. Another business man closely identified with the agitation is Sir Vithaldas Thackersey, chairman of the Indian Specie Bank and a member of the Supreme Legislative Council during the last three years, who contributed a letter to our columns on the subject on January 9. But Mr. Webb's local admirers in Karachi do not seem to set much store by this assistance, for the *Sind Gazette* observed on November 2, that the attention being directed to the Indian financial problem in England 'will be a matter of satisfaction to all who have followed and sympathized with the Chairman of the Karachi Chamber of Commerce's single-handed efforts to educate public opinion in these matters.' No doubt the writer of this tribute had in mind the failure of the Karachi Chamber last June to induce the other Indian Chambers to make a joint protest against 'the excessive cash balances being retained by the Secretary of State in London' as 'being opposed to India's best interests.' The Bengal, the Bombay, the Upper India, and other Chambers refused to participate, the two former giving in reply reasons for holding that the present system is not 'against the best interests of India.'

But whatever may be the case as to individuals and Chambers of Commerce, the efforts of Mr. Webb 'to educate public opinion have had the most strenuous support from the great newspaper to which Lord Crewe paid just tribute a few weeks ago—the *Times of India*. It has followed every phase of financial policy for years past, with great ability, vigour and independence. The freedom of its campaign from mere personal or party aims is reflected in its regret that the transactions with Messrs. Montagu have bulked so largely in the discussion in England. 'They are a side issue,' writes the *Times of India*, 'they have nothing to do with the broad grounds on which the financial methods of Whitehall have been arraigned ; and if they be justified up to the hilt they leave the general question untouched.' Even the question of the loaning of the Secretary of State's cash balances is described as 'secondary,' and the hope is expressed that when the debate comes on next month 'some friend of India will insist on bringing the House of Commons back to principles, which otherwise will be obscured beneath a weight of irrelevant detail.

CALCUTTA COMMENT.

When the subject first came into prominence early in November, the *Englishman*, a strongly Conservative journal, gave some support to criticisms of the India Office, urging that the Government of India should always have a free hand with its own cash balances; but since then it has left the subject almost entirely undiscussed. Its contemporary, the *Statesman* on the other hand, has paid much attention thereto in a spirit of marked hostility to the agitation. It declares that the 'wild charges' against the India Office have never been endorsed or countenanced by the leading banking interests concerned; and that the clamour for a gold coinage 'finds absolutely no support among business men in Calcutta, the Chambers of Commerce, 'with one eccentric exception,' have not asked for it, and, apart from the *Times of India*, the newspapers 'have been either indifferent or hostile to the proposal.' It holds that the existence of a silver ring fully justified the employment of the firm of Messrs. Samuel Montagu, and speaks ironically of the claim that henceforth the purchase of silver for Government 'shall be proclaimed from the housetops, although a ring of gamblers may be in waiting to put up the market against the State which affords them protection, and to feather their nests at the expense of the Indian tax-payer' *Capital*, the well-known Calcutta financial weekly takes a similar view, and its Bombay correspondent has attributed a letter in the *Times of India* signed 'Common Sense,' criticizing Mr. Webb's conclusion, to Sir Shapurji Broacha, 'our soundest financier,' remarking that no one else could have written with such intimate knowledge of the Indian money market. On December 19, *Capital* expressed satisfaction that leading financil weeklies here were 'pooh-poohing the silly cry that India is being sacrificed to the greed of London bankers.'

MADRAS VIEWS.

The leading newspaper of Southern India, the *Madras Mail*, holds that the silver purchases were imprudent and that the recent accumulation of such heavy balances in London 'was exceedingly short-sighted.' But its chief criticism is directed to Lord Crewe's 'hasty declaration in favour of gold coinage.' It declares that the agitation for this change has been sedulously fostered by a small number of persons who have professed to stand for the whole of India, in spite of numerous protests against such misrepresentations'; and challenges Mr. Webb to 'point to a single class of disinterested and competent supporters' of his advocacy of gold currency. As to the excessive cash balances, it comes to the conclusion that they were the result of a series of accidents, and thus were raised contrary to the intentions of their managers—partly perhaps by an exaggerated prudence and partly by lack of foresight. That these opinions interpret local business views was indicated by speeches at the annual general meeting of the Madras Chamber of Commerce, on September, 10. The chairman (Mr. A. D. Jackson) thought there was room for adjustment somewhere if large cash balances were unemployed or earning a nominal interest in London, while the trade of India contended with higher rates of interest. Mr. W.B. Hunter, Secretary of the Bank of Madras, deprecated the whole agitation, and declared a gold coinage was not required. The circulation of gold in the form of sovereigns was quite rapid enough, the difficulty would be to prevent its increasing so rapidly as to become a danger to London, the one free market for gold. A tight money market in London at once reacted on Indian exports. Although large sums were lent out in London, there was plenty to spare in the treasury balances in India, and these should be entrusted for employment to the large banks.

'UP-COUNTRY' PAPERS.

While it has protested from time to time against some of the financial methods of the India Office, the *Civil and Military Gazette*, (Lahore) has been constrained to describe as a 'gigantic mare's nest' the suggestions of personal corruption made in some quarters in

this connection. The *Pioneer*, the one daily newspaper to enjoy a general circulation in all parts of India, has impartially opened its its columns to special contributions from Mr. Webb and to frequent and vigorous attacks upon his theories by its commercial correspondent in Calcutta. The latter has reported the existence of 'some anxiety' lest the Secretary of State should be induced to consider seriously the curtailment of Council bills to his actual requirements, as a sop to the agitators 'in which case trade would be badly dislocated' The *Pioneer*, in a leading article in the weekly edition of December 27, complains that the process of daily questioning in the House of Commons has been the worst possible method, from a business point of a view, of bringing these questions to the front. 'If an inquiry is desirable now it was desirable at the beginning of November, and a small and efficient committee appointed then might have disposed of the whole subject by this time, to the great economy of the time of the House and the avoidance of a rank crop of insinuation and surmise.' As to the more personal aspects of the case, it fails to see that there is any definite issue to be taken for the authoritative settlement of which a committee is required, as for instance in the matter of the Marconi contract. But it holds that there are many questions of broad principle which might be advantageously placed under the consideration of a committee, if it were composed judiciously and appointed quickly. Moreover, the appointment of a committee, would have a beneficial effect as freeing us from the strange domination which the Fowler Committee seems still to exercise over the minds of those who enter into this controversy. The Allahabad paper holds it to be extraordinary that after the lapse of 14 years fidelity to the recommendations of the committee should be regarded in some quarters as 'the one test of sound policy.'

Generally, it may be said that careful examination of the files of the principal Anglo-Indian newspapers for the last two or three months shows that while the views of our Anglo-Indian Correspondent have altogether failed to secure widespread support, our contention in connexion with them that the whole problem of Indian financial management should be re-examined by an independent and representative commission is supported in influential quarters and is not contested by any important organ of Anglo-Indian opinion.

INDIA AND TARIFF REFORM.

Mr. Bonar Law made a remarkable reference to India in his speech at Oldham on 8th November 1912. He said :—

"Our present position in India is an impossible position. Our Governments say to these Indian people, 'We are a free trade country, and we insist that you shall put on an Excise duty which you do not want, so that there will not be a handicap against Manchester goods.' Well, I like to be frank and to speak frankly. I say that we have claims on India. We have done India great service, and we have a right to say—and without hypocrisy but openly—we have a right to say that we are entitled to fair play in the Indian market. That is our proposition. We say to India. 'If you want to put on tariffs, put them on against the rest of the world, but be a Free Trade country to us and we will be a Free trade country to you.' That is my policy for India. It is a policy which we can justify, and the present policy cannot be honestly justified by any Government."

Lord Crewe, the Secretary of State for India, subsequently criticised this remarkable statement in two speeches early in December, followed by a letter later in the month.

Let us see what Lord Crewe's criticisms were. In the first place, he said that for us to settle India's fiscal policy, not on what India wants, not solely on a consideration of what should be beneficial to India, but "without hypocrisy" and "openly" on our claim to India's gratitude for past services rendered by us would be a "new departure" constituting an "unexampled

misfortune in the history of our Imperial connection with India." Lord Crewe added:—

"Let there be no mistake about it. The first British Government that surrenders the principle of Free Trade in its own domestic policy will no longer have the moral right, and if it no longer has the moral right, how can it claim the power to debar India from the advantage, if it is an advantage, of frankly protectionist duties, on the same scale as are imposed by the selfgoverning Dominions, against the chief competitors with her domestic industries, namely the great manufacturing export trades of Lancashire, Yorkshire, and the Midlands. The Protectionist demand in India is for protection against the Mother Country, and nothing less, for the Mother Country is by far the greatest competitor with Indian manufactures. I could quote a number of proofs, but if Mr. Bonar Law does not believe me, let him ask the Indian Protectionists themselves, or let him ask a man whose opinion he is bound to respect, I mean Lord Minto, who has stated his views on the subject since he ceased to be Viceroy."—(*Cheltenham, December 4th*, 1912.)

"I ask in all seriousness how it will be found politically possible to maintain the Government of India's official opposition to the introduction in India of a tariff comparable to the tariffs in the self-Governing dominions? Consider the position. You will be erecting a great Imperial Zollverein, and you will be asking India 'openly and without hypocrisy' to take a place which, compared with that of those portions of the Empire which control their own purse, will appear to her to be a servile place. And let me say finally, that to couple such a proposal with a claim on India's gratitude for past services would be a political indiscretion of the gravest magnitude. Anyone who knows the spirit of modern industrial India will assure Mr. Bonar Law of that."

Lord Crewe examined in some detail the consequences of Mr. Bonar Law's scheme on the Indian Budget. At present the British producer supplies the great bulk of the imports, two-thirds of the actual value and a much greater proportion of imports that can be produced in this country. Two millions would be a very moderate estimate of the loss caused by exempting of British imports from duty. How would this money be raised? "There is no community in the world where the imposition of fresh taxes is so difficult as it is in India." Mr. Bonar Law asks India to give the United Kingdom a free market for 62 per cent. of her imports in return for a free market in England for 26 per cent. only of Indian exports. What are the counterbalancing advantages offered to India by Mr. Bonar Law? Lord Crewe said:—

"The counterbalancing advantages offered to the Indian export trade by the scheme have not been defined. They would depend of course on the character of the protective and preferential import duties imposed in this country. A preference on Indian tea, tobacco, and indigo would be of very small account to the Indian producer. A preference on wheat and other food products might be of some value, unless, as we are constantly assured by Tariff Reformers, the effect of the Preference would be to lower the price of food grains. But the general conclusion which Lord Curzon's Government came to in their famous fiscal despatch, that India 'has very little to gain' in return for fiscal concessions on her part is sound. Equally so is the further conclusion, that she has 'a great deal to lose or risk.'"—(*Cheltenham, December 4th*, 1912).

We add one further passage from Lord Crewe's second speech:—

"Lord Goschen accused Tariff Reformers of gambing with the food of the people here. Knowing what India thinks will Mr. Bonar Law persist in gamlbing with the goodwill of the Indian people? I fear he may, for what is his alternative? There is only one, and it lays his whole fiscal policy in ruins. If he does not persist in his present course he must go to the industrial constituencies and tell them that both justice and policy in India require that Imperial tariff reform

involves an Indian protective tariff against British manufactures, masked by a useless preference against the foreigner. He must ask them to incur this as a certain and inseparable consequence of his proposals, imperilling not only the prosperity of the thousands of great businesses which contribute to our export trade to India, amounting to £50,000,000 annually, but the weekly wages of hundreds of thousands of our employed classes. There, too, I can promise him a speedy decisive, and final answer."—(*Bournemonth, December* 11*th*, 1912.

Mr. Bonar Law replied—

"Lord Crewe seems to think that Indians claim protection even against us. So far as I can judge, so far as cotton goods are concerned, the competition which they have most reason to fear is not that of Lancashire ; it is the competition of Japan and perhaps of China. Will it not be of immense advantage to Indian, to be able to protect themselves, if they please, against the competition likely to be most deadly to them."—(*Ashton under-Lyne, December* 16*th*, 1912).

To this Lord Crewes replies in his letter dated (December 21st) :—

"But who are in fact the principal importers of cotton and piece goods into India ? The facts are that 91·78 per cent. of the total cotton import comes from Lancashire, 1·52 per cent from Japan, and 0·05 per cent from China. It is impossible to embelish such figures, and since they cannot be disputed, Mr. Bonar Law has in the above-quoted words furnished himself with a final answer to his doubts as to the true direction of Indian protectionist sentiment. It is an unsentimental business sentiment, and it is directed against Lancashire. He simultaneously in these words puts on record in the strongest possible form his conviction that if the interests of India are to be paramount, as he says they are, she must be allowed to protect her industries from the competition that is likely to be the most deadly. On the point of principle India will agree ; that is my whole case. On the point of facts involved she will dissent from him, with consequences that will be very serious."

"If Mr. Bonar Law will ask himself why we cannot get inter-imperial free trade with the Colonies now, whereas, putting revenue difficulties apart, we could have it with India tomorrow, he must admit that it is because the manufacturing interests of the self-governing dominions have power to protect themselves against the manufacturing interests of the mother country, whereas, in India, Bombay cotton mills and nascent iron and steal industry and other manufacturing enterprises lack this power." Lord Crewe pointed out that after Mr. Bonar Law shall have negotiated with the self-governing Colonies with the object of arriving at the quickest route to inter-imperial free trade, his Finance Member of the Government of India will to meet the Viceroy's Council in the debate on the budget. "It is not difficult to foretell the attitude of very able Indian publicists who adorn that body. They will certainly stipulate that India should be allowed to advance to Mr. Bonar Law's desired goal by the same pleasant path of domestic self-governing Colonies. My simple contention is that the the British Government which rejects industrial Protection as inequitable and adverse to the general welfare of any country and proves its sincerity by rejecting the practice for England, can answer the arguments advanced in favour of protection for India. But addressed to Mr. Bonar Law's party who believe that industrial protection is wise and just and that without it industrial development cannot be properly fostered or maintained they will remain unanswerable."

Mr L. G. Chiozza Money in the *Daily News and Leader.*—

The facts of the case are that India under British rule is a Free Trade country, freely able to buy from any market in the world. Of the cotton goods entering India we supply nearly 100 per cent. of the greys, about 98 per cent. of the whites and about 94 per cent of the coloured goods. That is to say, our production under Free Trade is so efficient

that we monopolise the Indian import market through sheer merit.

What would the position be under Protection? Preaching protection ourselves, and declaring to the Empire and to the world that we needed import duties to protect our own old established industries, how, I ask, in the name of commonsense and fairplay, could we deny to Indian cotton manufacturers the right to protect themselves against foreign competition? The only competition that counts to the Indian manufacturer is British competition, and the protection that he would ask for, and the protection that we could not decently refuse him, would be protection against ourselves. Lancashire's exports to India are worth about £30,000,000 a year and what Mr. BonarLaw did not face was the demand that would inevitably arise in India for import duties on this £30,000,000 as soon as the United Kingdom became a Protectionist country.

Once more I point out that Protection is death to the conception of a United Empire. No man can be a Protectionist for Britain without being also, if he is honest, a Protectionist for Canada, a Protectionist for Australasia, and a Protectionist for South Africa. The day upon which we set up "Tariff Reform" here is the day upon which we provided India with an unanswerable argument for shutting out Lancashire cotton goods and ruining tens of thousands of people in Lancashire.

The Madras Times :—

In no country, not excluding Great Britain, have industries developed without state assistance, and if European countries found tariffs necessary when Britain alone was the competitor, how much more is it necessary in the case of India, which is up against, not one, but a dozen rivals."

The demand for tariffs (in India) may or may not be justifiable, but no one questions the fact that it exists, and the inference is that, if the demand was complied with, capitalists and workers would throw themselves into the business with much more enthusiasm than they are showing now. There is no reason why they should not, in that case, achieve as much success as the German or any other protected manufacturers.

Tariffs would stimulate India's industrial development, then undoubtedly foreign suppliers would benefit as well as Indian, the reason being that a rich India would prove a much better customer than a poor India. There is one way, and one way only, of bringing England round to consent to the imposition of tariffs in India, and that is to encourage the investment of English capital. At present Lancashire dominates the scene, because there is more English money invested in her industries than in Indian. But reverse the positions, and India would soon get what she wants. We live in a world in which the biggest interest wins.

The Leader:—

Another point which we think is the chief reason urged against protection is consideration for the English workman. But we may ask whether it is right that Indian industries should be subjected to an unfair treatment in order to provide employment for English workmen?

The question of a protective tariff for India has often engaged the attention of many Englishmen but with no result. Every time a protection is demanded the same old hackneyed argument is advanced in reply. It is said that if protection is allowed to India, Indians as a whole, would not benefit by it; instead only a few traders would grow rich at the expense of the consumers. This may be true of short periods, but in the long run the consumer will not stand to lose in any way. As soon as people see that a certain industry pays more than another, capital and labour will flow in the more profitable channels, until an equilibrium between demand and supply is reached. Thus prices at first will be high but subsequently they will fail.

Another argument urged against protection is this. They say that it the protected industry offers better chances of success and a higher profit, capital and labour will no doubt

flow into it, but this will not lead to the accumulation of more money nor to an increase in the number of labourers, for industries less profitable will engage less attention, and all the capital and labour employed in them will flow into these industries. We doubt the correctness of this statement. Some capital and labour will be diverted but not all. Even if we were to assume that less profitable industries would altogether perish, the argument against protection falls to the ground. We can explain this better in some such way as this. Supposing a cultivator grows a rupee worth of grain in a day. If he leaves this occupation and joins another, it will probably be because he can get more than he now earns, say a rupee and a half. Thus we see that with the same amount of labour and capital the national produce will be largely enhanced and the condition of labourers will be much better.

The Indian Spectator :—

Tariff reform is an old question which has often been discussed with reference to India as well as other parts of the Empire. The controversy between Mr. Bonar Law and Lord Crewe is probably a sign of the coming change of Government. The Unionist leader expects India to favour imports from the United Kingdom against the manufactures of other parts of the world in consideration of the undoubted blessings which the dependency has received from British rule. Lord Crewe, on the other hand, urges that if once the policy of free trade is departed from, India will not be content with anything short of the liberty, which the self-governing colonies possess, of raising a wall of tariffs against all the world, including the United Kingdom. Neither party is prepared to give India that liberty. The Liberals deny it on principle ; the Conservatives deny it because it would be prejudicial to British interests. The fears entertained by Lord Crewe of gambling away the good will of the people of India seem to us somewhat exaggerated. England has not gambled away that good will by her present policy, though it is notoriously unacceptable to Indian capitalists. It cannot be impossible to depart from that policy, and effect a compromise between Mr. Bonar Law's scheme on the one hand and the present system on the other. That India should grant a favour to the United Kingdom which is not extended to the rest of the world is a sentiment which, we believe, will find a ready response in this country. There may be a disposition in some quarters to ask England to rest satisfied with other than commercial privileges in return for the blessings conferred upon this country ; yet it may not be impossible to persuade the general public of the reasonableness of Mr. Bonar Law's appeal to gratitude, if preference does not involve injury to Indian trade by retaliation or otherwise. The Unionist leader, while he relies on that part of human nature which responds to good services, forgets another part of human nature which has found expression in the saying that charity begins at home. While we should no doubt be charitable to England as against the rest of the world, we may be excused at the same time if we want to be charitable to ourselves in preference to our benefactors. It would follow that a compromise could be effected between different policies by showing more favour to local products than to imports from the United Kingdom, and granting greater concessions to the latter than to imports from the rest of the world. The first wall, lower than the second, need not be so high as to justify Lord Crewe's vivid apprehensions of the workmen of Lancashire being reduced to starvation. Yet it may be sufficiently high to give a chance to local enterprise where some measure of protection is likely to evoke it without placing too heavy a burden on the consumer. It is doubtful, for example, whether England will be materially prejudiced if cotton goods from Lancashire are somewhat more highly taxed than local goods. The excise duty may be retained for purposes of revenue at a time when the Government wants money for so many purposes, while a slightly higher rate on imports from the United Kingdom and a still higher tax on imports from elsewhere

may give us more revenue without materially injuring the trade of Lancashire and without denying to England the gratitude which she expects. Under such a scheme of a double wall of tairffs and different degrees of preference it may be more diffcult to satisfy all parties in practice than under the present system. In theory, however, it would combine what is reasonable in Mr. Bonar Law's demand as well as in the Indian demand, and with a little amount of mutual forbearance there is no reason why it should put an undue strain upon the good will of the people of India or on that of the people of England.

Times of India:—

The principal demand fo India to day is not for this fiscal system or that, but for freedom, within certain limits, to adjust her system to her requirements. The Government of India is most responsive to Indian opinion: it is the best judge of the economic needs of India: and it is much more national than any Secretary of State would care to recognise. Assuming that this freedom were accorded, what would be the trend of Indian fiscal policy? Not, we believe, very markedly different from what it is now. India is a country where indirect taxation is least oppressive and most expedient: therefore a tariff for revenue purposes is essential. India is a country with a large population of very small means: therefore a low tariff is desirable in order to keep down the cost of living. India will never be a great manufacturing country in the full sense of the term, consequently a general protective tariff is not demanded. But because India must always be mainly an agricultural country, where the harvest will be subjected to violent seasonal fluctuations, and because her staple industries will always be few, therefore the greater need for freedom in developing and conserving them. The greatest drawback to the progress of Indian industry is its insecurity : that is the reason why such a large proportion of the savings of the people is held in bullion. For these reasons the Government of India ought to be given discretion, within certain limits, to use their fiscal power for the development of the industries toward which the country is specially favourably situated—a Government, it must be remembered, which has been made specially sensitive to Indian opinion—and to use its tariff in order to retaliate against countries which penalise Indian produce. That is a power which Lord Curzon claimed and used with effect, both in the case of Indian coffee and bounty-fed sugar. In the excrcise of this power India has no desire to injure British industry and would, we are convinced, of her own will gladly give a preference to British imports. All sensible Indians recognise that the future of this country is indissolubly associated with that of Great Britain, and therefore that it has a powerful interest in seeing Britain strong and prosperous. We believe that Indian economic opinion is much closer to the creed of Mr. Bonar Law, with all its imperfections than the academic rigidity of Lord Crewe; which narrowed down is that what is good for Great Britain a country which produces little food and less of the raw products of industry—must be good for India, which is a large exporter of both: and that it is not only good policy but—disinterested.

POINTS FROM THE PRESS AND PLATFORM.

Loss of Investment.

At the time of introducing the Companies Bill twelve months ago the Hon'ble Mr. Clark called attention to the growth of companies as necessitating legislation in matters now brought within the scope of the Bill. He said that since 1882 there had been a great increase in the number of Joint Stock Companies. He quoted figures for 1885-86 and for 1910-12 showing that the number of companies and their paid up capital had trebled since the old Act had come into force. There is not the least doubt that the law requires to be changed to suit the growing requirements of the country. In fact the main principles of the Bill have been welcomed by all classes of people. There is, however, one point on which no light has been thrown to justify the proposed measure of State protection of investors. It is worth enquiring what is the amount of loss sustained by investors during the period referred to above, what proportion does this loss bear to the total amount invested, what percentage of the loss is to be attributed to the failure of purely Indian enterprises and what proportion to mixed or European enterprises. The Hon'ble Mr. Clark might with advantage throw some light on these points and refer also to English statistics by way of comparison. In England when the discussion on the Companies Bill was in progress these statistics were being freely made use of in order to convince sceptics of the necessity of exercising greater control over speculative efforts. It was stated that the *annual* loss by the failure of companies worked out to about 12 millions sterling. No one wants to repeat here the colossal blunder of inflicting such loss on the nation. Still it stands to reason that the measure of State intervention should bear some proportion to the amount of loss sustained by the nation.—*Tribune.*

India's Undeveloped Resources.

India abounds in unbounded natural resources which, if properly worked, would be to her a source of perennial wealth. But there is very little of spirit of enterprise or industrial insight in her people as a whole, with the result that she is starving in the midst of plenty. There is a general lack of enthusiasm and of practical thinking in connection with matters industrial. Volumes have been written on Indian poverty, and complaints have been repeated about foreign exploitation of India's revenue and resources, but how very little has been done, and how much more remains to be attempted, to bring about an era of industrial activity and prosperity! Even the example of foreign industrialists, who have come and settled in India, and have organised large commercial concerns, which they are working at enormous profits, fail to convey to us the full import of the value of co-operation and organisation of skill and capital. Railways, canals, tea and jute industries, coal, copper, gold and other mines, rubber plantations, woollen mills, leather factories, these and many others, owe their development to the genius, skill and enterprise of the foreign people. From one point of view it can hardly be a matter of complaint that Europeans should have a virtual monopoly of so many departments of industry and commercial undertakings in the country. It is more a question of capacity than of anything else, that Europeans, and not Indians, occupy so prominent a position in the industrial life of the country.—*Leader.*

India's Resources.

India is a country unique in her way, inasmuch as she is practically independent of all the rest of the world, as regards supplying her population with everything they could possibly need. There is only one great drawback to perennial prosperity, and that is the ever-abiding shadow of famine which, owing to one unfavourable season, may take palpable form in starvation and suffering and death. This sufficiency of natural resources, perhaps, was a cause contributing to the fact that while India, from the earliest times, always exported

more goods than she ever imported, her sons did not take to the sea and become daring navigators and conquering captains. Be that as it may, the export question, owing to the fact of India being so independent, touches her very materially, for the preponderance of exports over imports has been one of the factors in helping to frame the currency policy of the Indian Government which is so generally complained of. It has been the fate of India to have often been exploited in the interests of England, and this has been especially the case with regard to her trade and industries.—*Madras Times*.

The Successful Business Man.

The successful business man always studies to discover the spirit of the age and prepares for it. He inquires what the tendency is, what new forces are working to transform society and what effects are likely to be produced? He then lays his plans, prepares his business and produces his wares accordingly. He seeks even to anticipate public taste - to show the world what it wants, but did not quite know what it wanted until it saw it produced. The man who first produces something new, or who wraps up an old product in a new and more attractive form, can generally command a fortune. His success is tremendous. He has mobilised demand.—*Dixon's Monthly*.

Ministers as Directors.

Readers of newspapers in India have doubtless read the attack that is being made against the India Office who employed Messrs. Samuel Montagu & Co., the bullion dealers, for purchasing silver on behalf of the Government of India. The ground of criticism is that the head of the firm is a brother of the Under Secretary of State for India, the insinuation being that the transaction could not have been quite fair. The matter is likely to come up before parliament. Meanwhile it may be noted that Cabinet Ministers generally resign their appointments as Directors of Companies when taking up office. Every one who cares for the purity of public life would applaud this course as proper, salutary and desirable.

The contrast however is striking between the practice of Liberal and of Tory Governments. The *Liberal Monthly* points out that the practice was strictly observed by the Liberal Government which left office in 1895. It was thrown aside by the Tory Government (1895 to 1905) under Lord Salisbury and his successor, Mr. Balfour. In each of the Sessions of 1899, 1900 and 1903, attention was called to the number of directorships held by Ministers, and an amendment to the Address moved, declaring that the position of company director was incompatible with the position of a Minister of the Crown. On each occasion this was supported by the Liberals, but opposed by the Tories and defeated, Mr. Balfour definitely declining to accept the rule. On the formation of the Liberal Government in 1905, all public directorships held by members of it were at once given up on their acceptance of office, and the rule has, of course, been adhered to in the case of all subsequent appointments.

Study of Business Methods.

In the strenuous commerical rivalry of today, and still more of the future, success will come only to those who have exhausted every means of studying the different phases of the special branch of commerce in which they are working. The most profitable sources of study must surely be the business methods and procedure of foreign competing firms, and the man who is able to devote his vacation during three or four consecutive years to attending the courses arranged in various countries by the International Society would lay in a store of knowledge which would prove to be of inestimable value to him in the future.—*C.D.C. in the Journal of the Royal Society of Arts.*

Engineering for Indians.

There is every reason to welcome the effort now being made to revise the general scheme of educating and training natives of India for engineering and industrial work in their own country. The conditions governing engineering operations in India are widely different from those which hold in Great Britain, and

the complete system of teaching requires to be planned to meet Indian requirements. Primarily the distinction arises from the differences in methods of supply of materials; for in India, as was pointed out some years ago by Colonel Ottley, "from the day you begin to lay out your levels you have got to do everything; you have got to find your earth and make your bricks; you have got to find your limestone and make your lime; and in many cases you have got to teach your men to do the work." There is no doubt that native Indians, with an imperfect knowledge of the English language, have in the past experienced considerable difficulty when they have entered English engineering colleges for the reason that lectures and books upon technical subjects have at first been unintelligible to them. Moreover, consideration requires to be given to the circumstance that the native Indian reaches his prime at a comparatively early age. The chief requirements consequently appear to be that technical and industrial training should be made available for comparatively young natives, and that while a certain amount of it should be given in technical colleges, special importance should attach to practical experience on public works in India. The aim must be to sustain the genius that set up India's temples, and to nourish the minds of those from whose race proceeded so important a part of the basis of all quantitative calculation.—*The Times.*

The Hon'ble Mr. Chakravarthy on the Idle Class.

I desire to point out one grave difficulty in the way of what is generally known as your idle class or Bhadralog population consisting mainly of Brahmins, Baidyas and Kayasthas and some Mahomedans. These are mostly middle men or tenure holders and the change of conditions has pressed upon them more heavily, and I may say, cruelly; the causes of their trouble are not far to seek. The first and the foremost is the rise in the price of staple food, secondly, the law of inheritance; thirdly, the expenses of education; fourthly the expenses of social functions, *e.g.*, marriages and Sradhas and fifthly, the divorcement from the soil and the village and the seeking of employment which is mainly of an unproductive character. With your permission, I would like to refer to two more causes which are somewhat unpleasant to discuss, that is, sixthly, litigiousness; and seventhly, desire to keep up false appearances. With an aversion to manual work has come into being a dislike even to supervise manual work. I have already pointed out that this part of your population is small, being about a twelfth of your total population but this is a class which is practically the brain of your district, and as such it deserves great consideration though somewhat disproportionate to their number. Gentlemen, I have not however the time at my disposal on this occasion nor am I justified in seeking your attention to a full discussion of these causes. But the remedy seems to me to be that this population must turn its attention to the soil and must take to agricultural pursuits and endeavour to get more out of our mother earth. If they do so, they will succeed ere long in striking out new paths for themselves and for generations yet unborn which will inevitably result in much greater competence, comfort, health, strength and manliness than at present.

Mr. Visveshvarayya on Eastern and Western Ideals.

I referred to certain public questions affecting the State as a whole. I alluded to the rise in prices and the changed conditions under which we live and work, as a result of the rapid growth of communications. I stated that though the conditions under which we live have radically changed, our ideals have not. The Hindu ideal is that this world is a preparation for the next and not a place to stay in and make oneself comfortable. The nationalities of Western countries, on the other hand, rest on an economic basis. Their activities, political, industrial and social, are subordinate to the resources at command, and they all aim at the creation of more wealth and increased comfort. If we want to know in what direction to move, we must compare

ourselves to and be guided by the experience of progressive countries. The comparison brings to light certain startling truths which I am never tired of repeating and which cannot be too often, or too strongly, impressed on the attention of our people. The material progress of every country is always powerfully influenced by the condition of its education, and the education in the State is at a very low ebb. Ninety-four persons in every 100 of our people are illiterate. In progressive countries, the percentage of illiteracy does not usually exceed 10 or 15. Seventy-two per cent. of the population of Mysore depend on agriculture. In England the number dependent on agriculture is very small, the entire population living under rural conditions being less than 22 per cent. No country so largely dependent on agriculture, under conditions of such precarious rainfall as ours, can be called prosperous. For nearly six months in the year on an average, the ordinary Mysore cultivator has no regular occupation. The efficiency of our workmen is low. They lack manual training and discipline. It is computed that three Indian workmen are required to do the work of one labourer in progressive countries. The earning power of a Mysorean is computed at about one-fifteenth of that of an average European, or less. The prosperity of a country is measured by the number and magnitude of its industries and the volume of its trade. We have not awakened even to the necessity of maintaining correct statistics in this respect. The annual correct death rate in Mysore is over 30 per 1,000; in Europe, it is 15 to 18. The average duration of the life of a Mysorean is less than twenty-five years. The same in America and Europe varies from 45 to 54. It is necessary that these truths must soak into the minds of the people before they can seriously realise the need for exertion.

Protection of the Investor.

The basic principle of the Companies Bill now on the legislative anvil is the due protection of the investor. In providing for such protection English law recognises the importance of the non-intervention of the State with legitimate enterprise. But under the proposed Indian enactment, the investor is to be protected by the State even against himself. In England the Board of Trade is empowered to appoint a competent Inspector or Inspectors to investigate the affairs of a company *if a certain proportion of the shareholders seek such a remedy.* In India share-holders need seek no such intervention and the Registrar, who may not be very well disposed towards a Company, is to have the power of influencing the Local Government to appoint such an Inspector. Can anything be more subversive of the elementary principles of State intervention in private enterprise? A few anonymous letters against any company the operation of which may be beset with difficulties is generally enough to induce a Registrar to take action. Such an attitude of the State overlooks the effect of an artificial trouble on the credit of the company concerned. The enforcement of this provision in half a dozen cases irrespective of the results of the inquiry would be enough to scare the timid investor and add to his terrors of investment. Timidity in investors and lack of initiative and enterprise in promoters being the chief obstacles of commercial and industrial advance, restrictive provisions of the kind are disastrous to growth. It should be remembered that qualities of self-reliance, powers of organization, driving force and such other essentials of success do not flourish under the overshadowing official Indians. Indians have no opportunities of displaying and cultivating those qualities in the service of the State. And they are now to be protected from the risks attached to private enterprises in which they may cultivate such qualities. It is the future effect of such restraints which should be considered more than the present advantages of investors.—*Tribune.*

AGRICULTURE.

Milk for Poultry.

The value of milk in fattening table poultry has long been recognised. In East Flanders, operations are determined in extent according to the quantity of milk available. That the product named appears to have an equal value in chicken-rearing would seem to be true, says a writer in the *Journal of the National Poultry Organisation Society, Ltd.* Several experiments have been recorded in America which emphasise this statement. One of the last of these is that of two lots of White Orpington chickens; one of these was fed on food mixed with milk and the other not. The results were very striking. At four months and seven days the former was from 50 to 60 per cent. heavier than the latter, and the pullets which were milk-fed commenced to lay much earlier than did the others. The great value of milk in animal nutrition is well known and there does not seem to be any reason why it should not be equally valuable for poultry. Farmers and others who have milk to spare, skim or whole, sweet or sour, should try its effect comparatively and be guided by the result.

Manuring the Mango.

Manuring of mango trees with well rotted litter in July or August once in two or three years increases the yield of fruit, but it is said that high manuring interferes to some extent with quality. Leaf mould is always the safest manure for mango trees. Applications of strong manures to unirrigated trees after the rains sometimes even kill them.

Cotton Seed Selection.

The following are among the many important points to be attended to in Cotton Seed Selection. (1) The plant should be healthy and free from disease of any kind. (2) It should be robust and vigorous in growth but not too tall. (3) The bolls should be numerous and distributed well up to the tips of each branch. (4) They should be large in size and when ripe should open wide, thus setting free the kappas in such a way as to become fully mature and easily picked. (5) Seed should be saved only from the best bolls and not taken from very early ones which sometimes open prematurely; the first two regular pickings provide the best seed.

Cocoanut Cake and Milch Cows.

An investigation was carried out on the South Eastern Agricultural College Farm, Wye, during the months of April and May May, 1911, to determine the suitability of co coanut cake as a food for the production of milk and butter. Three cows, which had calved about two months previously, were selected, and, after being fed for a fortnight on an ordinary ration, were given a diet containing cocoanut cake, the quantity fed being at first 2 lb. a day, and gradually increased to 6 lb. per head daily. The total period in which the cocoanut cake was fed was three weeks, after which the cows were kept under observation for a week during which time they received ordinary foods. The cocoanut cake appeared to produce very little effect on the yield and quality of the milk, and on the Reichert number of the butter, though in view of the shortness of the period and the small number of cows it is impossible to draw definite conclusions. It was clear, however, that the cake made the butter much firmer, and it is suggested that on this account it should prove useful as a food in warm weather when difficulty is experienced in making firm butter.

Preparing Seed Bed for Rice.

In the Report for 1908-09 of the Agricultural chemist of the Bombay Department of Agriculture, a brief account is given of the use of *rab* in the prepartion of the seed-bed for rice.

The process consists in burning a mass of branches of trees or cow-dung on the land where a rice seed bed is to be placed, some time before the rains. This is said to bring about in the soil three changes which increase productivity: (i) alteration in the number and proportion of soil bacteria; (ii) the making soluble of a considerable amount of nitrogenous matter in the soil: and (iii) the improvement of its physical condition.

COMMERCE.

The Export Trade in Oil Cake.

Dr. Harold H. Mann, Agricultural Chemist to the Government of Bombay draws attention to a danger in connection with the export of oil cakes. Most of the export demand for oil cake is for the purpose of using it in France and England, for the preparation of cattle foods. This applies to practically all our oil cakes, except that from castor seed, which is poisonous and can only be used for manure. Such being the case, it is essential that it should arrive in Liverpool or Marseilles in good condition and not mouldy. It appears however the oil cake as produced in Bombay, tends to contain a large quantity of moisture, and hence in its passage to Europe has a great tendency to go mouldy, and hence be of little use when it arrives at its destination. The mouldiness of cake when it reaches its destination is principally due to the large quantity of moisture which it contains, and, hence, if it is to be avoided, it will have to be packed as dry as possible, and bagged as carefuly as possible. "I understand" says Dr. Mann, "that not very many years ago quite a brisk trade was done in Indian oil cake with English and Continental ports, but as the trade expanded,makers and shippers appear to have got careless in regard to the condition of the cake shipped and so European buyers dropped off,and the trade largely disappeared." Now that a fresh beginning has been made, it is very important that those interested in the trade here should make all possible efforts to maintain the quality and condition of the cake shipped, and so ensure a steady expansion of the trade.

Business Enterprise in India.

The commerical enterprise of India during the month of November 1912 is shown by the subjoined abstract of joint-stock Companies Registered in that month.

	Rs.
3 Banking and Loan Companies ...	5,45,000
4 Insurance Companies ...	1,40,000
4 Printing, Publishing and Stationery Companies	1,20,000
5 Trading Companies (other than specified above)	17,10,000
2 Cotton Mills Companies ...	27,00,000
1 Jute Mill Company ...	20,00,000
1 Mill for wool, silk and Hemp, etc., Co.	50,000
3 Mills and Presses (other than specified above)	7,50,000
5 Tea and other Planting Companies	8,00,000
1 Coal Mining Company ...	3,50,000
29 Grand Total ...	91,65,000

The New Delhi.

In a paper read before the Indian Section of the Royal Society of Arts, on the 12th December, Sir Bradford Leslie referring to the commerical future of Delhi points out that the situation of Delhi, equidistant by rail from Bombay, Karachi, and Calcutta, has already made it the most important commercial *entrepot* of Northern India for the distribution of imported goods, hardware, piece goods, etc., and this pre-eminence must increase when it becomes the permanent home of the Indian Government the numerous Indian employees of Government and their families. The industrial development of Delhi has hitherto been seriously handicapped by the high cost of coal-over £1 per ton. Water-power developed by the weir converted into electric energy will be a cheap source of power. The Jumna being a glacier-fed stream, its flow in the season of the melting of the snow will replenish the lake annually even if the monsoon should fail. Obviously, therefore, the design of the weir should be such as to impound as much water as possible in the rainy seasons. The data for calculating the extent of this source of power are not available, but the Jumna power project, with three or four hydro electric generating stations on the upper course of the river, will develop some 50,000 h.p., which, at high voltage, can be transmitted to Delhi, ensuring a cheap and reliable source of power, which will enable factories of any description to be established in the vicinity of the city.

INDUSTRY.

Manufacture of Ammonium Sulphate.

We learn from *Commerce* that Mr. P.C. Dutt barrister-at-law, of Jubbulpore, is the prime promoter of a new company which is soon to be floated with a capital of half a million pounds sterling with a factory in the Central Provinces for manufacturing ammonium sulphate, of which commodity Japan imports 73,000 tons and Java about 40,000 tons annually. It is estimated that the plant to be installed by the company will produce 60,000 tons every year, coal being used in the process from extensive deposits over which Mr. Dutt holds the mining rights. While the promoters estimate a modest profit of 20 per cent. annually on the subscribed capital, the possibility of 40 per cent., or even 50 per cent., is mentioned by independent experts. Both Japanese and British investors will be invited to dip their fingers into this promising pie.

Sheds for Curing Tobacco

In a recent issue of the *Journal of the Department of Agriculture*, Victoria an account is given of sheds that are suitable for curing tobacco. This commences by pointing out that such sheds should be built in positions where advantage may be taken of the prevailing winds ; while at the same time it is not desirable that the site should be very much exposed. The soil beneath should be dry and well drained. For the production of bright leaf, the sheds should be small, and under the conditions, a square shed measuring 16 feet× 16 feet, four floors high, has been found convenient ; in the circumstances described, this holds an acre of tobacco. The lowest floor should be 9 feet from the ground, and this as well as the others should be provided with poles 4 inches in diameter running from end to end ; the use of the poles is to carry the sticks on which the tobacco is hung. The second floor should be 3 feet 6 inches above the first, and the third the same distance above the second. In the space below the roof, two rows of tobacco may be hung. For heavy tobaccos, larger sheds are required, and if the leaf is to be partly air-cured, arrangements should be made so that the shed can be widely opened or tightly closed. Such a shed is described which, under the conditions, will hold about 1 acre of tobacco.

Weaving Industry in Madras.

Mr. Alfred Chatterton, late Superintendent of Industrial Education, Madras, and now Director of Industries, Mysore, in a note on the Madras Weaving Industry says : In my own mind there is not the least doubt that the backward condition of the weaver is largely, if not entirely, due to the lack of organization for the disposal of the products of his labour. In the hands of the Baniya or the cloth merchant, he can never expect more than a bare livelihood and is therefore entirely devoid of any inducement to make a change. Everything seems to point to the fact that for any permanent amelioration in the condition of the weaver, the first step is to get him out of the hands of the sowcar and provide him with an agency for marketing his goods on fair commercial terms. In the case of the export trade this has been done, but the difficulties in connection with the domestic trade seem to be almost insuperable. It is doubtful if any centralised agency could establish itself in face of the local opposition and in view of the very little support it would get from the weavers themselves. A warping mill will greatly reduce the labour, and unquestionably the first problem which we must tackle in our efforts to further improve the condition of the weaver is how to get him to use a warping mill.

The Government order thereon says :—For the present the Superintendent of Industrial Education will be requested to submit detailed proposals for the exhibition of a warping mill and the organization of a peripatetic instruction party to demonstrate to the weavers the advantages of improved methods of work and appliances. The Government agree with Mr. Chatterton as to the inadvisability of establishing a weaving factory at present.

ECONOMICS.

Comparisons in High Prices.

A question that invariably arises in discussions upon the problem of high prices that has exercised us so much in the last few years is whether the consumer's material prosperity has correspondingly increased, so as to enable him to meet advantageously the higher cost of commodities. Many attempts have been made to solve this query, but the task is too wide for the ordinary inquiry to cover. But the Board of Trade have just issued a statistical return on a new model, which throws an interesting light upon the problem so far as the British Isles are concerned. The tables show for each of the years 1900-1911 the estimated value of the imports and exports of the United Kingdom at the prices prevailing in 1900. They demonstrate that exports are obtaining almost exactly the same prices as in 1900; but that import prices are appreciably higher. The United Kingdom is, in short, £37,000,000 a year worse off than it would be if all prices had moved equally. An economic contemporary points out that as a creditor nation, to whom large sums fixed in terms of gold are annually due, the people of Great Britain and Ireland are interested in low prices as such, the question of whether the prices of exports or of imports are rising the faster is of great importance. The deterioration of the position of the United Kingdom in the past ten years is due to the changing ratio of values as between manufactured goods and raw products. The position is one of the highest significance to a country economically situated as the British Isles are, but it is, observes the *Times of India*, hardly less interesting to a country which wholly exports raw products and imports manufactured goods.

Farm Economics.

There are many reasons why the subject of Farm Economics should command special interest. In the first place, it concerns directly and personally a large and important class of our population. Then, again, indirectly we are all dependent upon the farmer for the most indispensable of all our supplies—our food. To the student of political economy the special branch of agrarian economics presents some features of particular interest owing to its fundamental character and its close relation to the most primitive wants of man. The American Government is doing splendid work in collecting data which must be welcomed by each of these classes of persons interested, but most of all by the farmer, to whom the question of the judicious distribution of his investment, to the best effect, among the several items incidental to farm management, is a matter of dollars and cents. Bulletin No. 212 of the Bureau of Plant Industry, "A Study of Farm Equipment in Ohio," gives a most valuable review of important data of this character. On twenty-one farms investigated the following was found to be the average distribution of capital invested ; In land, drainage and water supply 61 per cent., in buildings 21 per cent., in implements and machinery 5 per cent., and in live stock, 13 per cent. The bulletin gives much detailed information, of which the figures just quoted represent a gross summary.

CO-OPERATION.

Agricultural Co-operation in India.

The crux of the Indian problem has been said again and again to be the indebtedness of the agriculturist. If co-operation can do something to relieve this agricultural indebtedness, it will have done a great thing, says a writer in an Indian monthly. Co-operative banking in villages is important, not only because banking solves the most difficult problem of the ryot—his indebtedness—but also because the lessons of co-operation learnt therein by him will serve him in good stead in

other departments of activity. An agricultural bank, which is the form that co-operative banking will take in villages, has been defined as an Agriculturists' Bank, *i.e.*, a bank intended for the cultivating classes, from which they can borrow money for all their various needs whether for the improvement of land, the erection of a house or farm buildings, the purchase of stock, the paying off of prior debts, the maintenance of the family and other objects.

Agricultural Co-operation in Great Britain

Co-operative Agricultural Distributive Societies in England undertake the collective purchase of the manures, seeds, implements, etc., required by the members and the collective sale of their produce. There were 145 such societies at work in 1909 in England and Wales, and 31 in Scotland as compared with 4 and 1 res, ectively in 1895. In England and Wales in 190 ' the membership was 13,589, the total sales were £885,683, and the profit £8,140; while in Scotland in the same year, the membership was 3,860, the sales £277,141, and the profit £1,948. With regard to egg and poultry societies, there were, at the end of 1909, fifteen such societies in England and Wales, with a membership of 986 and total sales amounting to £15,453, while in Scotland, there were two such societies with a membership of 89 and total sales amounting to £438. Co-operative Productive Societies are occupied in buying, manufacturing and selling the produce of the individual members and their operations are chiefly confined to the dairying industry. In 1909 there were 18 such societies in England and Wales with a membership of 1,048, a share capital of £20,356, total sales amounting to £66,506 and a profit of £640, as compared with 7 societies in 1895 with a membership of 665, share capital of £13,597, total sales amounting to £17,544 and a loss of £120. In the case of Scotland, 5 societies were at work in 1909 against 1 in 1895, and the sale had increased from £11,786 in 1895 to £37,317 in 1909. There was a loss on the working of these Scottish societies in both years. An important position among these societies is held by the cattle and pig insurance societies. Their number and work have, however, increased only very slightly, *viz.*, from 55 with a membership of 3,424 and reserve funds of £6,599 in 1899, to 57 societies with a membership of 3,954 and reserve funds of £7,671 in 1909 in the United Kingdom.

Co-operative Merits of Nidhis.

Speaking of nidhis, a writer in the *Madras Co operative Bulletin* points out that they have served a useful purpose in the economy of the country—nay, they have promoted some of the ideals of co operative societies also. A high authority on the subject once remarked--"A nidhi is in many respects a co-operative society. Ordinarily it does not lend except to members and enforces thrift : no one who is not prepared to take up one or more shares and to contribute to the share capital month after month can join a nidhi." As banking institutions, they have, as Mr. Thorold Rogers would perhaps put it, "marshalled and mobilised into lines the forces of capital." Like other banking institutions, they have the merit of removing the personal element altogether. Moreover they encourage thrift and productivity, their principles are definite and fixed, their dealings are public, and they give training in businesss habits and in working together for a common purpose.

BANKING, FINANCE AND CURRENCY.

Gold Coins to be Minted.

In reply to Mr. Touche, in the House of Commons regarding the minting of gold in India, Mr. Baker said that in a despatch, dated October 18th, Lord Crewe had suggested to the Government of India that instead of sovereigns, large quantities of which reached India in the course of trade, Indian gold coins of the denomination of, say ten Rupees, should be coined in Bombay.

Points for Banking Legislation.

The principle of a compulsory deposit has been accepted in regard to Insurance Companies. Why not make it equally necessary in the case of Banks ? There should also be a compulsory provision for Reserves, which would strengthen the security of both shareholders and depositors ; restrictions as to investments : also restricted transfers of shares for two or three years after starting, which would be an earnest of the faith and confidence of the promoters in the soundness of their scheme. Legislation may accomplish much in this way towards securing the depositor's money and the shareholder's interest.

The Four Big Banks.

A recent issue of the *Investors Chronicle* points out that of the twelve great joint-stock banks, the largest are Lloyds, the London County & Westminster, the London City and Midland, and the National Provincial Bank of England. The paidup capital and reserves of the first three exceed £7,000,000 each, and the corresponding figure for the National Provincial is just over £5,000,000. The deposits of Lloyds and the London County & Westminster exceed £80,000,000, the London City & Midland's are £78,000,000, and the National Provincial figure reaches nearly £63,000,000. The London County & Westminster, since the amalgamation of the London & County and the London & Westminster Banks has probably led the way in the matter of enterprise with regard to new branches and opening of new accounts with the small trader and clerk. That it does not despise the smallest account is shown by its purchase of the Birkbeck's business, in which were many accounts seldom rising above ten or twenty pounds, kept by the customer for the convenience of cashing cheques. The National Provincial, on the other hand, has proceeded more cautiously, opening new branches only where there seemed a certainty of their becoming remunerative in a comparatively short time. This conservatism is revealed also in the figures of its balance-sheet. The days are gone when every banker considered essential a large holding of Consols and first-class securities, yet the National Provincial, although by no means the largest joint-stock bank, has a larger holding of British and other first-class investments even than Lloyds, as it holds 15½ millions against Lloyds 11 millions. All the banks now hold larger cash reserves than they used to do. The proportions of cash and investments to deposits are now : Lloyds 38½ per cent., London County & Westminster 42 per cent., London City & Midland 41½ per cent., and National Provincial 49½ per cent. As regards active cash and money at call, the National Provincial has £15,769,000 out of total assets of £69,057,000. The movement of great City banks into the provinces is clearly shown by the growth in the number of their branches. Twenty years ago the London & County had 175 branches, the London & West-minster 16, Lloyds 136, the London & Midland 64, the City 12, and the National Provincial 166. At the time of its amalgamation, the London County & Westminster had 307 branches, and National Provincial 256 ; now the London County & Westminster has 344, Lloyds 565, the London City & Midland 659, and the National Provincial 264. Though the National Provincial has not added to the number of its branches in the same proportion as the London County, its business does not seem to have been restricted by this fact ; for, while the National Provincial's deposits have risen by about £22,000,000 in the past twenty years, the London County and Westminster's are just over £20,000,000 more than were those of the two banks. The National Provincial has always been a bank with many country branches ; the London & Westminster was purely a London bank. Whether the suburban business will be as profitable to the great London banks as the country business has been to the National Provincial remains to be seen.

INSURANCE.

Co-operative Insurance Society.

It is stated that arrangements have been completed for the absorption by the Co-operative Wholesale Societies of England and Scotland of the Co-operative Insurance Society, Limited. The agreement now completed is, it is understood, subject to acceptance or rejection by the delegates at the quarterly meeting of the various districts of the Co-operative Wholesale Society. The arrangement is for the transfer of the whole of the engagements of the insurance society, with its capital and funds, liabilities and assets. The combined capital of the amalgamation amounts to £51,193,395, and the profits realised during 1911 amounted to £12,010,168.

A Lady and her House Insurance.

An elderly woman called upon an insurance agent in a provincial town to announce that she wished to insure her house. "For how much, madam?" asked the agent. "Oh, say £100." "Very well. I'll come and investigate the case." "I don't know very much about insurance," remarked the lady. "Oh, it's quite simple," replied the agent. "If I insure for £100, and the house is burnt down, I get the money, do I?" "Certainly," "And you don't ask me who set it on fire?" "Oh, yes; we should want to know all about it." "Then you needn't come up," she said as she rose to go, "I knew there was some catch about it somewhere, and now I see where it is."

The Cost of Assurance.

Many people appear to imagine that it should be possible for any office to accept a comparatively small premium and immediately guarantee the payment of a large sum at death, even should that event occur within a year of the payment of the first premium, that is to say, they look for Rs. 1000 in return for a premium of about Rs. 50. At the same time they consider that the moment they decide, for any reason, to break their contract by discontinuing their payments, the office should promptly refund every penny they have paid in. Can this be considered reasonable? They appear to forget that the administration of the company involves serious and regular expenditure; that the claims of those who die during the first few years have to be met; that it would be impossible to return to the assured the total amount he has paid in, because a certain proportion of that money has already been disbursed for the above and other quite legitimate purposes.

The Benefit of Insurance.

It is impossible, observes a writer in *Worlds' Work*, to proceed far in the study of Assurance without discovering that it is a beneficent power which produces the equalisation of risks, losses and burdens, thus securing individual relief for all those who need to take advantage of its benefits. Some claim that it represents perhaps more fully than any other development of modern life, the highest point that civilisation has touched. Certainly there is much to be said for this elevated view of Assurance, which has a solid scientific basis, and whose effect is to encourage co-operative action in accordance with a system which rests on a sure foundation of mathematical exactitude and statistical experience covering a wide area andcomprising a mass of carefully collected and collated facts and figures.

Swadeshi Insurance.

The "Indian Nation" has the following reference to 'swadeshi' insurance companies:— "With the advent of so many Indian Iusurance Companies, most of which are managed by people having little experience or knowledge of the fundamental principles of the calculation involved in working out the rates, there is a tendency for unhealthy competition resulting from their attempts to outbid each other in offering benefits to policy-holders or renumerations to canvassing agents. There should be a strong association of these companies which will create a better understanding among them and check the evil results of unhealthy competition ordangerous practices." So far, there has been no attempt to create such a society.

EDUCATION.

The Ideal School.

M. Augustin Rey, a Parisian architect, described his ideal school in a recent paper and said that the beneficial effects of the violet rays were so well known that it was criminal to build in such a way that they could not penetrate to every part of a room; it was doubly important that this should be possible in school rooms. If there was a choice between heat, ventilation and sunshine, we should see that we had the sunshine first. His building would be so arranged that the classes should meet in the east rooms in the afternoon after the morning sun had thoroughly disinfected them and in the west in the morning, since the afternoon sun would have disinfected the western rooms on the previous day. There should be plenty of ground and plenty of sand about school houses. It is better to economise in decorations than in sunlight and ventilation. He said that while this was his ideal school he preferred the open air school.

Technical Scholarship.

The Government of the United Provinces is prepared to receive applications for technical scholarships of £150 a year, each tenable for two years, enabling the holders to proceed to England or other Western country in order to obtain instruction in one of the following Industries :—

(1) Sugar engineering.
(2) Wood and grass pulp working.

The possession of a University Degree is not required, but candidates must possess a thorough knowledge of English and must be qualified either by a scientific education or practical experience to profit by one or the other of the courses of study which has been indicated. It is desirable further that they should already have some connection with the industry or should be in a position to turn their training to practical use on their return to this country.

Sending Indians abroad.

Mr. Wallace, Editor of the *Indian Textile Journal* states that the sending of Indian students abroad for the study of trades is of very doubtful value. They sometimes work hard and gain many prizes but only a small amount of training has a money value here, and most of them would have done better to remain in India working and studying under local conditions. It is still true that the most highly paid mill managers in India are men who have obtained all their experience in this country. Every year as industries extend, there is less need for study abroad, and if foreign study is considered necessary the student should have a good basis of Indian experience to start with, so as to correctly appreciate the novelties he encounters abroad.

Commercial Classes in Bombay.

We learn from the *Indian Spectator* that the Principal of the Elphinstone High School, Bombay in his report on the London Chamber of Commerce examinations held here during last summer, has recommended that the Government should exercise some sort of supervision over the many schools and classes that have sprung up in the city, so that a healthy tone might be given to commercial education, and it might be made worthy of the name of education at all. A student who joins a commercial class enters into a sort of agreement with his Principal and undertakes to pay a certain sum of money in two instalments. The first instalment has to be paid at the very commencement and cannot be avoided, but it appears that the second instalment is sometimes evaded, and perhaps the teacher is unable to prevent the student from presenting himself at the examination without paying his dues. The teacher refuses to hand over the Chamber's certificate to a successful student if he is in arrears. These transactions and disputes are obviously of too commercial a nature to be educationally edifying, and the Government has approved the suggestion that only recognised schools and classes should be permitted to send up candidates for the examinations. The popularity of these examinations is said to be increasing year by year.

ECONOMIC PRODUCTS.

Kapok.

In the January issue, we gave some particulars regarding Kapok, the sources of supply and the uses to which it is put. Kapok is also used for surgical dressings because it does not become matted. It may be used for making life-belts and life buoys since it has great buoyancy and retains this quality after being immersed in water for several days, which is not the case with cork or reindeer hair. Kapok, after immersion in water for thirty days, loses only 10 per cent. of its buoyancy, which it at once regains on being dried. A company has been formed in Germany for spinning yarn from Kapok either alone or in admixture with cotton. Kapok is also used by hat makers and in the manufacture of guncotton.

Guinea Grass.

The following is a summary of an account of the cultivation of Guinea Grass (*Panicum maximum*) in the *Agricultural journal of India*:—

(1) It is a quick-growing grass as it yields in 45 days a cutting 6' to 8' high, weighing 14 tons on the average per acre.

(2) It yields the largest quantity of grass known in a given time from a given area.

(3) It is highly nutritious and is useful for feeding all kinds of stock.

(4) It is a real perennial and occupies the ground for at least a generation without requiring change.

(5) It is the least expensive to grow with no costly seed bill to start with, no weeding and very little interculture.

(6) It is the best fodder plant for intensive cultivation as it yields a quantity of fodder which we cannot hope to get from eight times the area of *juari* at double the cost. It is a most hardy and drought-resisting fodder plant, useful in times of scarcity.

(7) It is free from pests and fungus diseases to which lucerne and other fodders are liable.

(8) It always yields a good return to a cultivator, whose object is sale of fodder.

Turmeric.

This plant (*Curcuma longa*) which is indigenous to many hot countries, is in general cultivation throughout the Eastern Tropics, and is in large use by the natives of the islands of the Pacific. The virtue of the plant, for all the various purposes to which its product is put, lies in the mature tubers These vary a good deal in size as well as form, according to species, the prevailing shape being oblong, but in colour they are all more or less of a grey or greenish-yellow externally, and of an orange yellow inside. The chief use, probably, to which this product is put in the economy of the arts is as a condiment and a colouring matter in culinary preparations. Its use as an ingredient of curry powder is well known, and to the presence of turmeric is probably due much of the wholesomeness of curries. Its remaining uses are in the manufacture of yellow varnishes, and, in the form of turmeric paper, as a chemical test for the presence of alkalis, which change its yellow colour to a reddish-brown. The cultivation of turmeric is as simple as, and much resembles, that of ginger. It likes a rich and light soil, and is planted, in the form of fragments of the roots, in rows 1 foot or more apart. Others plant in beds 3 feet wide, with furrows intervening 12 to 18 inches apart, or in drills 8 inches apart. After the land is well prepared by digging, a layer of fresh vegetable or animal manure is laid on the surface, and the 'roots' then dibbled in. When the plants are about 8 inches high they should be earthed up to keep the young formed tubers well covered, and they then require little further attention until fit for harvesting in the cold season. The tubers mature in about six months; but are fit for use, fresh, in three months or less. An acre properly cultivated will yield about 2,000 lbs. of fresh roots. The tubers should be dug as soon as the stems fade. They are prepared for market by drying in the sun being previously scalded to assist in destroying their vitality.

BUSINESS METHODS.

A Side Walk Advertisement.

When a new side walk was being laid adjoining his store, an optician had the frame of a pair of gold-rimmed eye glasses skilfully imbedded in the asphalt, which as it hardened held them securely. People seeing them for the first time almost invariably stooped and tried to pick them up, which always furnished amusement for those who were wise.

One Thing at a Time.

A writter in a recent issue of the *Saddlery and Harness* gives some very good advice in regard to advertising which Indian merchants who never change their advertisements should well take to heart. He writes that by selling one article at a time, stray customers will be captured in a variety of ways that is often remarkable. An excellent plan is to vary advertisements each month, and to issue fresh circulars of the goods at the same time. Everybody is looking for new goods, "improvements" and such like. Give a customer what he likes. "The writer has known an article to be illustrated on paper of a certain colour one month and the very same article on a different colour the following month, and both captured orders owing to the change in colour of paper, which the overseas buyer took to be a new line."

A Tailor's Advertisement.

An ingenious method of advertisement adopted recently by a Dresden tailor, who is *inter alia* "Hoflieferant." He addressed his circulars, describing the excellence of his military tailoring to officers of the reserve in imitation official envelopes, with the printed inscription, "*For Mobilisation.*" The distributors were dressed in military uniforms, and commenced operations simultaneously in several German towns. Wives of absent reservists were terrified by the appearance of the fateful envelope at a time when mobilisation and European war were in the air. But the advertiser had scored his point by impressing his name upon his victim quite indelibly, which is, we are told. the essential end of advertising. The idea is unique, surely, in the annals of advertisement for boldness and absolute callousness.

American Trade Methods.

It appears that British Trade papers are mightily exercised over certain new methods adopted by American invaders. The latest cause for complaint, coupled with a grudging confession of admiration and astonishment, is the series of lectures accompanied by moving pictures that are being given throughout the trade centres of Great Britain on "Modern Methods in a Model Factory," by a great American manufacturing concern. It is stated that these lectures were attended by no less than 15,000 business people during the course of the recent Business Exhibition in London.

London Business Men.

According to an English paper, the habit among business men in London of using hotels as offices has grown enormously of late. Some of these men have offices and some have not. They find the atmosphere of hotels far more conducive to profitable business than that of even the most luxurious office. They fix their appointments at luncheon time and over good food and light wine they complete important discussions and transactions. A luncheon lasting three hours, including the time spent over coffee, liqueurs and cigars in the lounge is no uncommon thing among business men and there are many who transact more profitable business over the luncheon table of the hotel than in their offices. There is another type of business-man who, possessing an office of his own, conducts all his business not in one hotel, but in several. He writes his letters on hotel notepaper, and this is sometimes done to give an appearance of position and influence. He has been to breakfast for the purpose of discussing business. He hardly ever has a meal at which business is not discussed.

MACHINERY.

A Shorthand Type-writing Machine.

A new kind of shorthand typewriting machine called a "Stenotype" has been invented. It weighs 8lbs. and takes down 592 words a minute. There are 23 keys, and they represent 150 standard abbreviations, the sole code the operator requires.

Plant for a Paper Mill.

Mr. Sindall worked out the cost of a mill with a weekly output of 200 tons of bleached bamboo pulp, including plant, buildings and contingencies at £36,000. An Edinburgh firm estimated that a mill designed to produce 20 tons of air-dried unableached bamboo pulp per day of 24 hours working by the soda process would cost for machinery alone, including steam and power plant, £15,500. A Chicago firm's estimate inclusive of building, etc., for turning out 10 tons of bleached paper per 24 hours was £ 24,376. A further estimate for a mill working by the sulphate process with an out turn of 10 tons of unbleached pulp in 24 hours brings up the cost to £ 20,101.

The Life of Machinery.

In the course of an article on this subject an engineering correspondent writes to the *Times* :—There are two limits to the useful life of any machine or group of machines—the time during which it may be made to perform its work, whether or not the work is being done at a profit, and the time at which it is or may be superseded by some other machine or group of machines which will perform the same work at a price that will give the user a larger profit. The present article will be confined almost entirely to the second limiting cause, for when any machine is unable to perform its work properly, its economic life, if not at an end, is within a measurable distance of it. During the last 30 or 40 years what is practically a revolution has taken place in the views of engineers and of users of machinery in regard to the economic life of machines Forty years ago, totally opposite ideas on the subject of the construction of machines prevailed in the United Kingdom and in the United States of America In the United Kingdom the engineer and the manufacturer designed and constructed machines in such a way that they would go on working continuously, with very small amounts spent on them, and with very short intervals for stoppages for repairs, over a long period of years. Even at the present day, in certain districts, old machines may still be seen performing the work they have done for something like 30 years. In America, on the other hand, the idea of the designer, the manufacturer, and the inventor has been to construct a machine which would last for a few years, which would do its work fairly well during those few years, and which could be made for as small a sum as possible. The idea underlying English practice was that it was cheapest to buy a very good machine and keep it running as long as it would stand up to its work. The idea underlying American practice was that the smallest amount possible should be spent upon the machine, because with the rapid march of invention it was probable that in the course of a few years something better would be invented, and it would then not be wasteful to throw the old machine on one side and replace it by a new one. So far was this idea carried in the construction of American machines that in those which came over to this country a generation ago repairs were found to be practically impossible. Great skill was shown in covering up what according to British standards would be considered bad workmanship, and in making the machine, for a certain limited period, perform the work for which it was designed. Once, however, the machine showed signs of failing, all attempts at repair were found to be absolutely futile. The visits of English Engineers to America and of American engineers to this country, and the constant interchange of ideas between the engineers practising on the two sides of the Atlantic, have had their natural result, and machines which are constructed in this country at the present day owe a great deal to American ideas while there are also indications that American engineers have adopted a good many English ideas.

SCIENCE AND INVENTION.

Liquid Aluminium.

Experiments made for bringing aluminium to a liquid condition capable of being spread when cold over any dry surface have, according to statements from Germany, proved successful. The composition is applied with a brush, and gives an appearance similar to dull silver coating.

Sunshine and Seed Corn.

Corn is generally drilled across the furrows to enable the seed to be as completely covered as possible, and on light land this should be arranged, if the furrows permit, so that the corn shall feel the least effect of the sun's rays. This is not a fancy point, but the recommendation of a practical farmer, and the matter is one to which probably not much attention is given. There is a good deal, says Mr. G. Turnbull in the *Agricultural Economist*, in the angle in which the sun's rays catch the ground, and we should make what use we can of them where they are wanted. The mysterious and deadly effect of the Indian sun as compared with the Australian, for instance, is said to be due, or partly due to the differences existing in this respect.

Rubber substitute.

A substitute for rubber is stated to have been discovered, of which seaweed is the basis. Tests show it capable of withstanding 32,000 volts. It can be used for motor tyres, boots, and all sorts of purposes for which rubber is used and the cost is thirty per cent. of the latter.

Paper Gas pipes.

According to the *Gas World*, paper gas pipes seem to be coming into favour on the Continent. They are either made of paper pulp, moulded, compressed, dried and varnished or are made of sheet paper passed through melted asphalt, and rolled tight into tubes. These tubes are built up in successive layers compressed, and coated with fine sand, followed by a layer of silicate of alumina.

Artificial Cow's Milk.

A recent Press dispatch states that three German chemists at Frankfort-on-the-Main have discovered a method of making milk synthetically in the chemical laboratory. According to the dispatch, several scientists, including Sir William Crookes, tasted and tested this milk and pronounced it palatable. It is proposed to manufacture the milk in London and sell it at six cents a quart. The milk is made entirely from vegetable ingredients digested in a "mechanical stomach." Be that as it may, we hope that there is some truth in the report for there could be no danger of tuberculosis or any other disease germs in the synthetic product.

What is a Man?

The *Practical Druggist* gives a very interesting physiological, anatomical and chemical view of man. An average man of 150 pounds contains the constituents found in 1,200 eggs. There is enough gas in him to fill a gasometer of 3,649 cubic feet. He contains enough iron to make four ten penny nails. His fat would make 75 candles and a good sized cake of soap. His phosphate content would make 8,064 boxes of matches. There is enough hydrogen in him in combination to fill a balloon and carry him above the clouds The remaining constituents of a man would yield, if utilized, six teaspoonfuls of salt, a bowl of sugar, and ten gallons of water. A man has 500 muscles, one billion cells, 200 different bones, 43 gallons of blood, several hundred feet of arteries and veins, over 25 ft. of intestines and millions of pores. His heart weighs from 8 to 12 ounces, its capacity is from 4 to 6 ounces in each ventricle, and its size is 5 by 3½ by 2½ inches. It is a hollow muscular organ and pumps 22½ pounds of blood every minute. In 24 hours it pumps 16 tons. It beats about 72 times a minute. In one year an average man's heart pumps 11,680,000 pounds of blood. The heart is a willing slave, but sometimes strikes and it always wins.

HINTS AND RECIPES.

Reducing the Brittleness of Glass.

The brittleness of glass is due to the quick cooling of the hot substance. It is known that constant motion tends to rearrange the molecules in any substance and similar effect is observed when glass is boiled in a weak solution of salt in water, and allowed to cool gradually. The toughness of the glass is increased very much, and the effect of quick heating is less disastrous to them. This is easily applied to articles used in the laboratory and to glass globes for lighting purposes, and prevents much breakage.

Polishing Metals.

All metals are very effectively cleaned for polishing by using a pasty solution of rottenstone and spirits of turpentine. This removes grease and is very effective against the oxide and sulphides which tarnish the metal and prevents effective polishing. After the application of the paste, it should be cleaned off by a dry cloth and the metal polished by any good means, polishing wheel, or a flannel cloth which is most effectively used.

Candying Orange Peels.

For candying orange peels, use only the thick rinds ; soak the peels in water, changing several times, until they lose their bitterness, then put them into boiling syrup, and boil gently until they become soft and transparent ; then take them out and drain, roll in powdered sugar and put in a dry place. The syrup which adheres to the peel will "candy."

New Stockings.

New stockings should always be washed before wearing, as it makes them last much longer than if they had been worn straight away. To wash them, use a good soapy lather, rinse well in clear water, and dry quickly, hanging up by the toes. This prevents them from shrinking.

To Protect Wood from Boring Worms.

Articles can be protected from the wood worm, according to the *Arbeiter und Sehrebergarten*, by a liquor made from a decoction of 1 part common salt, 1 part pepper, 1 to 2 parts crushed mustard seed, 1 part garlic and 1 part of wormwood leaves, in 2 to 3 quarts of spirit of vinegar. With this mixture the articles to be protected from the wood worm should be twice coated.

New Preserving Medium.

A useful solution for fixing and preserving plants and animals in their natural colors, recently invented by Wickerscheuer, of the Berlin Zoological Museum, is prepared by dissolving 100 gms. of alum 25 gms. of sodium chloride, 12 gms. of potassium carbonate and 10 gms. of arsenic trioxide in 300 c.c. of boiling water. To this solution 1200 c.c. of glycerin and 300 c.c. of methyl alcohol are subsequently added. Objects preserved in this liquid are said to retain their form, color and suppleness to a remarkable degree.

To Get Rid of Caterpillars.

It begins to look as if the destructive moths and caterpillars have been conquered at last. A simple diet of lettuce leaves, it has been found, is the easiest and best way to get rid of them. All that you have to do if the caterpillars are spoiling your shrubs and trees is to catch one or two of them and feed them on some lettuce that has been soaking in water four days. After they have eaten all they care to, turn the caterpillars loose again. They will do the rest. The explanation is simple. It has been discovered that watered lettuce leaves give caterpillars the cholera. One caterpillar so infected quickly spreads the disease among its fellows. A caterpillar suffering from the cater-pillar cholera soon stops eating. It becomes weak and lazy, and usually crawls up on some object, as the trunk of a tree, a fence, a wall or other vertical surface, where it remains without motion. In a few hours there drops from its mouth a blackish liquid ; the caterpillar becomes more and more flaccid, one leg after another loses its support, and finally the creature, reduced to a black skin, hangs dead, still holding on with one or two of its false feet.

LITERATURE.

Britain's Dilemma, *by M. De P. Webb, C. I. E., Messrs. P. S. King and Son, Orchard House, West minster, London*. 10/6.

The Hon'ble M. De P. Webb, is well known in India as the redoubtable champion critic of the financial and currency systems of the Government in India. It is due to him and to his persistent agitation in all quarters that we have at last obtained a Royal Commission to enquire into the management or mismanagement of the currency and finances of India by the Secretary of State in London. Mr. Webb's main contention is that in order to prevent the normal flow of gold from London to India which would create a stringency in the London money market, the Secretary of State is over-taxing the people of India and transferring the cash surpluses to London, and that further, he is dislocating the monetary condition of India by transferring practically the whole of the Gold Standard Reserve to London, there investing it in securities which would be unsaleable in a time of war. The remedies that Mr. Webb suggests are that the Indian mints should be opened for the unrestricted coinage of gold, that the sale of Council Bills by the Secretary of State should be stopped, and that the settlement of the Home charges should be arranged through the agency of the Exchange banks, the total sum remitted being strictly limited to the requirements of the annual budget of the Secretary of State for India. The Secretary of State should stop selling Council Bills to finance, trade and closely carry out the recommendations of the Fowler Commission. There is a good deal to be said for this view and we have no doubt that the Royal Commission on Indian finances which will soon be constituted will rigidly scrutinise all views and recommend a statisfactory solution. The problem is a highly technical and complex one, and all who may be interested in the subject will find in Mr. Webb's book a powerful and impartial statement of the case for India.

The Tariff Reformer's Pocket Book, 1913, *by G. Graham Anderson, The Tariff Reform League, 7 Victoria Street, London, S. W.*

Modern Germany, *by J. Ellis Barker, Fourth Edition, Messrs. Smith Elder and Company,* 15, *Watertoo Place, London, S. W.* 10/6.

Wealth and Welfare, *by A. C. Pigou, M.A., Professor of Political Economy in the University of Cambridge, Messrs. MacMillan & Company, Limited, St. Martin's Street, London,* 10/-*net.*

Depreciation and Wasting Assets: *by P. D. Leake, F.C.A., F.S.S., F.I.D., Messrs Henry Good and Son,* 12, *Moor Gate Street, London, E.C.*

We agree with the author when he says that "the subject of Depreciation and Wasting Assets is of universal importance and yet, it has hitherto received little or no systematic attention." It is of universal importance because it closely concerns the annual profit and loss in computing which reasonably accurate methods are greatly needed on account of the enormous and daily increasing development of Joint Stock and other great enterprises under the guidance of a comparatively few highly-qualified Directors and Managers acting as agents for a vast number of owners who themselves know nothing about the business.

Apart from the question of Profit or Loss, a regular treatment of Depreciation and Wasting Assets is necessary also to determine with accuracy the annual cost of producing commodities, etc. It will be found useful to the internal management of industrial undertakings in all questions concerning competetive, comparative or recurring cost.

The author has ably dealt with the problem which is a vast and complex one. We have no doubt the publication will be found useful in all hands.

LAW.

Stock Brokers and their Clients.

The House of Lords recently gave judgment in a case of considerable interest to stock brokers and their clients. A broker had a German client for whom he had done a good deal of speculative business, but the broker had interests in a South Burmah tin mine as principal and not as agent. He sold some of his own shares to his German client, on which ultimately there was a loss. The client made a claim for damages against the broker on the ground that he had sold him his own shares without due notice of the change of position from broker to principal. The broker contended that he had given notice of his change of position, so far as the South Burma tin mine shares were concerned, and this view was accepted by Mr. Justice Bray and a special jury. The Court of Appeal reversed that decision, and the House of Lords without calling upon counsel for the respondent, unanimously upheld their judgment, dismissing the appeal with costs.

The Law of Master and Servant.

The following is the full text of the judgment of the High Court of Allahabad in the case of Ralli Brothers *versus* Ambika Prasad referred to last month :—The opposite party to this application was a clerk in the employment of Ralli Brothers on a monthly salary of Rs. 50 per month. He left his service in the middle of the month without the consent of his employer and he then brought the suit out of which this application has arisen to recover the salary for the broken portion of the month. He gave no previous notice of his intention to resign. The Lower Court has held that as he is an office clerk and not a menial servant the rule as to notice does not apply, and therefore he is entitled to recover the salary claimed. The question is one between master and servant. The plaintiff was engaged on a monthly salary and he would therefore, in the absence of a contract to the contrary, have been entitled to one month's notice before his dismissal. Equally his master was entitled to one month's notice before he left service. The lower Appellate Court is of opinion that this rule applies only to menial servants. This opinion is by no means correct and has probably arisen because cases of this description usually arise in regard to menial servants The English cases on the subject are to be found in Smith's Law of Master and Servant, 5th edition, beginning at page 182. The case of Ridgway *v.* Hungerforde Market Co. is the case of a clerk of a public company whose salary was paid quarterly and who was discharged for improper conduct. The judgment in that case runs as follows :—" Turner *v.* Robinson, and many other cases have shown that if a party hired for a certain time, so conduct himself that he cannot give the consideration for his salary, he shall forfeit the current salary even for the time during which he has served." See also the cases reported in I. L. R, 13 Cal. 80, and 10 B. H. C. Rep. 57. The same principle applies when the servant refuses to work in the course of one of the periods for which the salary is due. The decision of the court below is incorrect and on the findings the suit should have been dismissed. I grant the application and dismiss the suit with costs in both courts. Mr. A. H. C. Hamilton appeared on behalf of Ralli Brothers.

HEALTH AND HYGIENE.

To Measure the Urine

In obtaining a measure of the twenty-four hours volume of urine it is necessary to give the patient exact instructions, or the observation will probably be inaccurate. Without direction he will almost certainly collect all the urine from, say, 8 A. M. on one day to the same hour on the next. But this, manifestly, will be more than the amount excreted by the kidneys in twenty-four hours, as it will include

the quantity collected in the bladder prior to the commencement of the selected period. The better way is to tell the patient to pass urine at, say, 8 A. M., and to throw this away, and then to collect all the urine that is passed up to and inclusive of 8 A. M. on the following day.

Adulterated Bread.

Bread-making has much progressed since the days when fraudulent bakers were put in the pillory for offering bread made from musty flour. To-day modern technique and the public demand for brown bread enable the baker to use up any kind of flour whatsoever.

Mashed potatoes are cheap, and since alum helps the baker to make up an inferior flour to look as white as the best flour, and, further, enables the flour to absorb more water, the baking industry flourishes. The use of American flour adulterated with ground maize is also frequently detected.

Preservatives in Cream.

Regulations forbidding the use of preservatives in milk as well as in cream which comes below a specified standard have been recently introduced in England. Eleven years have elapsed since a Departmental Committee recommended such regulations, and during that time preservatives have been employed to an unnecessary and excessive extent. Cream containing 35 per cent. and upwards of milk fat may still be preserved with boric acid, borax, or hydrogen peroxide provided the consumer is informed that the cream is preserved, but the inclination to add an excess of boric acid will be checked by the necessity of declaring the percentage used, so that producers are encouraged to vie with each other in reducing the amount to the lowest possible limit. During the winter months none at all may be needed, and it will be interesting to see how little boric acid will suffice in the hot weather. In all probability, remarks the *Hospital*, these regulations will be followed by others dealing with various classes of foodstuffs, for the employment of chemical agents which will prevent the development of the micro-organisms concerned in putrefaction is too extensively practised. They render it possible to preserve articles of food in incipient decomposition with every appearance of freshness, and the sooner the Local Government Board turns its attention to other over-preserved foodstuffs the better for the public health.

Whitening the Teeth.

Teeth that have got very discoloured can be quickly made white by brushing them with a little pure lime juice, but one should be careful to brush them directly afterwards with tooth soap, and rinse them well, or the acid might injure the enamel.

House Dust.

House dirt comes from many quarters. Part of it is the "fluff" from the clothing we wear, and other sources are particles worn from the carpets, rugs, curtains, ceilings, walls, furniture, ashes from the registers, radiators, stoves and heaters, stray hairs from the family and from pet animals, particles of feathers, crumbs, the sheddings from insects, particles from our own bodies, and the nap or fleece from a hundred sources. This dirt of dust settles, some of it on the floor, some on walls, and ceilings, and some falls on the furniture, or clings to our clothes. If allowed to accumulate in rooms, it gives the atmosphere a bad, unpleasant odour, and invites fungi, bacteria and other poisons. If left long the inorganic part of this dirt undergoes a species of decomposition, giving off effects similar to that of sewer gas. Added to this is the dirt brought in from the outside on shoes and clothes, no matter how neat one may be. There seems to be only one thing to do—just keep on fighting. Plenty of fresh air and all the sunshine one can get, together with hot water; soap and the scrub cloth, seem to be our best disinfectants, and these should be used in abundance.

OPENINGS FOR BUSINESS.

[For particulars, address the Director-General of Commercial Intelligence, New Imperial Secretariat, 1, Council House Street, Calcutta, mentioning the *Wealth of India*. Firms that may like to follow up any enquiry should give proper references and restrict themselves to those enquiries only which they are fully and seriously qualified to handle.]

Oilseeds.

A Banking firm in Trieste is desirous of being placed in communication with shippers of Indian oilseeds. (B213)

Pencil-making Machinery.

A correspondent desires the names of makers of machinery for making pencils. (B214)

Canning Machinery.

A correspondent desires the names of manufacturers of machinery for preserving and canning fruits. (B215)

Akund and Kapok.

A correspondent in Bremen is desirous of being placed in communication with local shippers of Akund and Kapok. (B216)

Enamels and Paints.

A Liverpool Engineer desires to appoint agents in Bombay for the sale of certain patented enamels and paints. (B217)

Sulphate of Natrium.

A Government officer in Java desires to get into touch with Calcutta exporters of rough Sulphate of Natrium. (B218)

Tiles.

A firm in England is desirous of appointing an Agent in Bombay for the sale of tiles for flooring and wall purposes. (B220)

Iron and Steel Materials

A firm in Antwerp is desirous of appointing an agent in India for the sale of iron and steel materials (joists, tees, channels, angles, plates, etc.) (B232)

Boots and Shoes.

A London firm is desirous of getting into touch with manufacturers of boots and shoes with various soles, including those of jute and hemp. (B238)

Jute Bags.

A firm in British Columbia is desirous of communicating with shippers of jute bags. (B225)

Fish Oil and Fish Meal.

A firm in London is desirous of getting into touch with sellers of fish oil and fish meal (B226)

Gunny Bags.

A Commission Agent at Cairo is desirous of communicating with Calcutta shippers of gunny bags. (B227)

Almonds, Haselnuts and Pine nuts.

A firm in Spain is desirous of appointing Commission Agents for the sale of almonds, hazelnuts and pinenuts in Calcutta. (B228)

Hardware.

A firm in England is desirous of undertaking a buying agency for firms in India dealing in hardware. (B229)

Bedsteads.

A London firm desires to appoint agents in India for the sale of bedsteads. (B230)

Oilseeds, Rough Jute and Tallow.

A firm in Geneva desires to be placed in communication with exporters of oilseeds, rough jute and tallow. (B231)

Mica.

A merchant in Canada is desirous of communicating with shippers of Indian mica. (B221)

Saffron.

A firm in Kashmir is desirous of getting into touch with buyers of saffron. (B233)

Woollen, Cotton and Silk Piece-goods.

A firm of importers in India desires to get into touch with manufactures (in Bradford and Manchester, Germany and France) of woollen, cotton and silk piece-goods. (B234).

Loofah.

A firm in England is desirous of communicating with sellers of loofah required for making socks. (B235)

STATISTICS.

British Investments.

According to an article in the *Statist*, the sum of British capital invested abroad amounts to roughly £3,700,000,000.

Capital Amounts of Leading Countries.

It has been roughly estimated that France and England each possess somewhere about £12,000 millions capital; that Germany possesses about £18,500 millions; and that the United States easily heads the list with about £24,000 millions.

The Price of Bread.

There has been issued as a Parliamentary Paper (339) a return, asked for by Mr. Charles Bathurst in August last, "showing for every year from 1800 to 1910, inclusive, the current price of British wheat per quarter, the highest and lowest import duties charged on imported wheat, and the current price of bread in London."

The return shows that the highest figures were reached during the years in which the pressure of the Napoleonic wars was most severely felt. Thus in 1812 the average annual price of British wheat per quarter was 126*s*. 6*d*., the highest weekly average price having been 160*s*. and the lowest weekly average 107*s*. In the same year the average annual price of the 4lb. loaf in London was 17*d*. It had been 14*d*. in 1811 and 14·7*d*. in 1810, when the average annual price of wheat was 106*s*. 5*d*. per quarter. The figures for 1812 were the highest for the century, and were so apparently apart from the duty, since it is stated in a note that between 1803 and the early part of 1815 it is probable that owing to the high prices the lowest rate leviable (8¼*d*. per quarter) was that actually paid.

Throughout what are known as the "Hungry Forties" the price of bread in London was actually lower than the average of the previous 50 years. It fell in 1843 to 7·5*d*.—a lower figure than is previously recorded in the return; and in 1849 to 7*d*., though in 1847 it had risen to 11·5*d*. Again for the three years 1854—56—after the repeal of the Corn Laws—the price of bread in London was over 8½*d* per 4lb. loaf which, with the exception of 1847 already referred to, was higher than it had been for 31 years. It rose in 1867 to 10·3*d*., which was the same price as in 1815.

It was not until 1887—88 years after the repeal of the Corn Laws—that the price of bread in London (5-6*d*.) was lower than 6*d*.per 4lb. loaf. It was 6*d*. in 1898, and in 1902 and 1903, when there was a fixed duty of 3*d*. per quarter, it was 5·3*d*. and 5·6*d*. Although there has been no duty since the 1st July 1903, the price of bread has not since been as low as the figure for 1902, the nearest being 1907, when it was 5·4*d*. In 1909, it rose 6·1*d*., and for 1910, the last year of the return, it is given as 5·9*d*.

The Indian Mints.

From the report on the working of the mints at Calcutta and Bombay during last year, it appears that of the total receipts during the year the value of gold coins, which were so reduced in weight as to be taken at bullion value, was only Rs. 415. The silver coinage was confined to the re-coinage of 1,835 and 1,840 rupees and uncurrent coin. The outturn of rupees was more than that of the previous year by about 92⅔ lakhs. During the year 37,470,509 British dollars of the outturn value in standard tolas of Rs. 8,50,23,954 were coined at the Bombay mint against 5,552,910 British dollars of the outturn value of Rs. 1,26,00,062 in the previous year. The Bombay mint also coined 96,767 ten-cent and 564,668 five-cent pieces for the Singapore Government. During the year 41,760,000 nickel one-anna piece of the nominal value of Rs.26,10,000 were coined at the Bombay mint as compared with 40,200,000 pieces of the nominal value of Rs. 25,12,500 in the preceding year. The net gain on the nickel coinage which passed into circulation amounted to Rs. 24,35,338, against Rs. 19,82,089 in the preceding year. The bronze coinage of the year consisted of pice, half-pice and pie-pieces of the aggre-

gate value of about Rs. 9,25,625 against Rs. 9,45,124 in the previous year. The copper coinage comprised : (1) cents of the value of Rs. 39,920 executed for the Ceylon Government and (2) Amman cash of the value of Rs. 1,971 for the Pudukottai Durbar. During the year under review there was a net gain of Rs. 9,02,671 on bronze and copper coinage against Rs. 5,36,738 in the preceding year.

Failures of Businessmen.

IN the United States in 1911 there were 12,646 failures of businessmen, and of these, we are told, 3,414 were directly attributable to incompetence. The percentage due to the various causes is tabulated as follows :—

Lack of capital	13·4
Incompetence	27·0
Specific conditions	16·9
Fraud	10·6
Inexperience	41·1
Competition	2·9
Neglect	2·2
Unwise credits	2·0
Failures of others	1·3
Extravagance	·9
Speculation	·7

Indian Cash Balances in London

The cash balances of the Government of India, held in England on the 31st March, in each of the years named below were as follows :—1905, 10,262,581*l*; 1906, 8,436,519*l*; 1907, 5,606812*l*; 1908, 4,607,266*l*.; 1909, 7,983,898*l*.; 1910, 12,799,091*l*.; 1911, 16,696,990*l*.; 1912, 18,390,013*l*. The cash balances of the Government of India held in England on the evening of the 30th October in each of the years 1908 to 1912 were as follows:—1908, 1,196,691*l*. 1909, 5,00398 8*l*, 1910, 12,711,748l. 1911, 15,207,580*l*.; 1912 9,229,797*l*.

Indian Post Office.

From the annual report of the Post Office of India for the year 1911-12, it appears that at the close of 1911-12 the numerical strength of its staff was 92,755, the number of post offices open was 18,801 and the mileage of mail lines was 153,395, representing an annual travel of over 132 millions of miles. During the year nearly 965½ millions of articles including nearly 22millions of registered articles were given out for delivery. Stamps worth nearly £17,00,000 were sold for postal purposes nearly 27¼ million money orders representing a total value of nearly 32½ million pounds sterling were issued. A sum of over 6 1-3rd million pounds was realised on account of tradesmen and others through the Value Payable system. Over 1¾ million insured articles representing a total insured value of nearly 31¾ million pounds were posted, while the amount which had to be paid as compensation was only £1,091. Pensions to the amount of more than £183,400 were disbursed to native military pensioners. A sum of £54375 was collected at the cost of the Post Office on account of Customs duty on parcels and letters from abroad. 9,562 pounds of quinine were sold to the public and over 7 2-3rd millions of telegraph messages were sent from the telegraph offices under the control of the Post Office representing a total revenue of £280,636 as compared with Postal expenditure of £88,778 on account of such offices. On the 31st March, 1912, there were 1,500,834 accounts opened in the Savings Bank with a total balance of over 12½ million pounds sterling. Government Promissory Notes of the nominal value of £517,153 were in the custody of the Accountant General, Post Office and Telegraphs, and 22075 active Postal Life Insurance Policies with an aggregate assurance of £ 2,022,522 were issued. The total revenue and expenditure for the year after making the various administration adjustments amounted to £2,159,200 and £2,059,356 respectively. The shortest time occupied in the transit of mails from London to Bombay was 13 days 5 hours and 45 minutes while the average time for the year was 13 days 9 hours 35 minutes. In the opposite direction that is from Bombay to London the quickest transit was 12 days 22 hours and 45 minutes, the average time for the year being 13 days 9 hours and 10 minutes.

MISCELLANEOUS.

Electricity for Nagpur.

A company has been floated to give Nagpur a supply of electricity for public and private lighting and power. The authorised capital is Rs. 5,00,000, and the business will be managed by a Board of local gentlemen. An interesting feature is that the Municipal Committee have guaranteed a dividend of 4 per cent. per annum for seven years. Messrs. Crompton & Co., Ltd., of Bombay, Calcutta, London and Chelmsford, England, are contractors for the work. The public lighting will be carried out with metal filament incandescent lamps, six hundred in all. It is expected that the installation will be completed in about twelve months.

Money Trust Profits.

Giving evidence before the Commission enquiring into the so-called "Money Trust," Mr. Baker chairman of Pierpont Morgan's first National Bank of New York, said that the profits of the bank since its foundation in 1863 had been eighty million dollars The dividends amounted to 226 per cent. on the capital of ten million dollars in the last four years.

"D. H."—Doctor of Hotelkeeping.

This is a degree with which the world will become familiar if plans formulated in Berlin are successfully carried out. At a meeting of the Executive Committee of the International Hotelkeepers' League it was decided to establish an "Hotel Academy" for educational purposes. A fund of £7,500 has been subscribed by the leading hotels in Europe towards the initial expenses of the scheme. The Academy, which will probably be situated in Germany, will aim at converting hotel-keeping from a trade into a profession and at educating hotel employees on the same scientific lines as Barristers, Physicians and Engineers who graduate at Universities.

A Record Sugar Cane.

A recent issue of the *Agricultural Journal of India* records a case of extraordinary growth of sugar cane. The cane in question is a striped Mauritius cane taken from a field near Samalkota near Bezwada. It was 29 feet long, about 23 feet being solid cane. Though this was an exceptionally good specimen, yet the field from which it was taken was a wonderful sight and is reported to have ranged over 20 feet in height. The soil was a perfect alluvial loam with enough sand in it to keep it open and exceptionally deep. Castor cake is the accepted manure for this crop in Samalkota.

Trousers for Oxen.

The latest thing in the sartoril line in South Africa is trousers for oxen. This method of clothing beasts of burden is not due to any sudden accession of style in the Cape, but the garments have become a necessity in order to protect the animals from the testse flies, which are a torment and often a fatal enemy. The flies swarm about sunset, travelling near the ground, and they have been known to poison entire herds of cattle. The ox receives a bath before he dons the habiliments of civilisation. This bath consists of oil and resin, and is supposed to free the animal of all ticks and parasities. His pants are then thoroughly soaked in oil and resin, and when the swarms of flies come in contact with the trousers legs they die by the thousands.

American Cotton Exchanges.

Representatives of the Southern Cotton Exchanges and Chambers of Commerce have formulated plans for the organization of a National Association of Exchanges. The principal functions of the organization will be to deal with differences between shippers in America, and buyers and spinners in Europe. It is stated that no efforts will be made to control prices. Delegates of the Liverpool Conference will be empowered to adopt a uniform classification to govern the handling of cotton here and in Europe. A meeting will be held in time to make the new rules applicable to the 1913 crop.